AMERICA'S ROLE IN THE WORLD COAL EXPORT MARKET
(EUROPEAN OUTLOOK)

HEARING

BEFORE THE

SUBCOMMITTEE ON
ENERGY AND MINERAL RESOURCES

OF THE

COMMITTEE ON
ENERGY AND NATURAL RESOURCES
UNITED STATES SENATE

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FIRST SESSION

ON THE

DEMAND OF EUROPEAN COAL CONSUMING NATIONS

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AMERICA'S ROLE IN THE WORLD COAL MARKET: DEMAND OF EUROPEAN COAL CONSUMING NATIONS

TUESDAY, NOVEMBER 10, 1981

U.S. Senate,
Subcommittee on Energy and Mineral Resources,
Committee on Energy and Natural Resources,
Washington, D.C.

The subcommittee met, pursuant to notice, at 8:45 a.m., in room 3110, Dirksen Office Building, Hon. John W. Warner, presiding.

Present: Senators Warner, Wallop, Murkowski, Heinz, and Specter.

Also present: Roger Sindelar, counsel; D. Michael Harvey, chief counsel for the minority; and Ron Andes, congressional fellow.

OPENING STATEMENT OF HON. JOHN W. WARNER, A U.S. SENATOR FROM THE STATE OF VIRGINIA

Senator **Warner**. Today the Energy and Natural Resources Subcommittee begins a series of hearings on America's role in the world coal export market.

Recent events have painfully pointed out that energy security is the key to a country's national security as well as its economic well-being. Without a source of safe, readily available and reasonably economic energy, a nation is captive to the whims and dictates of foreign energy potentates, and is no longer capable of controlling its own destiny.

Energy dependent nations, after watching the price of foreign oil explode in the past few years creating dire worldwide economic straits and political unrest, have decided in ever increasing numbers to seek energy security by switching from ruinous foreign oil to less costly energy alternatives.

Toward this end, countries throughout the world, particularly in Europe, have been undergoing reevaluation of their national energy plans and are in the process of adopting new ones. This reevaluation has found many countries changing their traditional energy consumption patterns and traditional energy partners.

The switch to less traditional energy partners, however, may present as much a danger to the national security of energy dependent nations, if not more, than does the current reliance on foreign oil. Careful attention must be exercised to see that these new energy sources do not assume the dominant position foreign oil has attained, and that other more traditional alternative energy sources are looked to, to provide the bulk of needed energy.

One can only be encouraged by the emphasis being placed upon the use of coal in the new energy plans and policies which are now being formulated.

Reflecting this emphasis, coal use is up dramatically worldwide as major industries within many nations are converting from oil-fired boilers to coal-fired. The massive switch from oil to coal has found coal buying nations scrambling for large amounts of high quality steam coal.

This Nation has the opportunity through maximization of its coal resources to provide safe, secure energy to those nations which need it, thus freeing those nations from the constant threat of political and economic energy blackmail and helping to curtail the world's energy instability.

America's coal export industry, while registering recordbreaking sales last year of 90 million tons of coal worth $4.5 billion, is not without its problems. Inadequate coal port facilities, insufficient coal port depths, strained domestic coal transportation infrastructure and varying quality control procedures are some of the problems which have prevented the industry from maximizing its opportunities and limiting this Nation's ability to achieve what I believe is its true potential in the energy supply area.

Because of interdependence obligations this country has entered into with its allies, for America to be nationally secure, it is imperative that energy-dependent nations be accorded the opportunity to achieve energy security as quickly as possible.

In the war for energy independence America's coal resources must be honed and developed like any other "weapon" it has in its military arsenal.

All major problems, obstacles and barriers to the development of our coal export industry must be met head on and removed if we are to provide energy insurance to an energy unstable world.

It is my hope that unnecessary institutional and regulatory barriers will be removed from this industry's shoulders.

The oversight hearings of this subcommittee will focus on America's role in the world coal export, examining the problems this industry has encountered and what aid and assistance, if any, is needed by the industry to overcome the problems.

Today the subcommittee has asked major European coal buying nations and coal companies to testify regarding their country's coal needs and policies and what role America's coal industry will play in their future.

Senator Heinz.

STATEMENT OF HON. JOHN HEINZ, A U.S. SENATOR FROM THE STATE OF PENNSYLVANIA

Senator HEINZ. Mr. Chairman, I just want to commend you for holding hearings, very timely hearings. We only have to drive as far as the bridge between here and the Eastern Shore to see a substantial amount of the world shipping tied up in Baltimore Harbor. It is the same up and down the east coast, and I think the focus of this hearing on not only the markets that are there and the looking for coal, but on our particular constraints in meeting the demand for the market is a subject that is timely, and I just want to commend you, Mr. Chairman, for not only recognizing it, but doing something about it.

We welcome all our witnesses from all the countries represented. It is probably the most distinguished group of witnesses we have ever had before this committee.

Thank you, Mr. Chairman.

Senator **Warner**. Thank you for coming at this very early hour, but other work of the committee necessitates our starting quite early.

We will first have the adviser to the Interagency Coal Task Force, Mr. Zachariah Allen. We thank you, Mr. Allen.

STATEMENT OF ZACHARIAH ALLEN, SENIOR VICE PRESIDENT, F. R. SCHWAB & ASSOCIATES, INC.

Mr. **Allen**. Good morning, Senator. Mr. Chairman, Senator Heinz, ladies and gentlemen, I would like to thank the subcommittee for giving me the opportunity this morning to present my views before you. I wish to present to this subcommittee a picture of guarded optimism about the prospects for American coal exports and to make some suggestions of a legislative nature.

As you probably know, the United States for a long time has held the position of predominance in the seaborne trade of coal used for metallurgical purposes. We are indeed fortunate in that much of the reserve base in the United States is of a premium metallurgical coal quality. This should continue to benefit our own steel industry as well as the steel industries abroad.

However, since that trade is already well developed and since the steel industries of the world are not growing very fast and the metallurgical trade is not putting any additional pressures upon our socio-economic systems, it is, therefore, not a subject of great concern here today.

However, I would remind you that the metallurgical coal trade is today and will continue to be a major export for the United States, and that anything we do to encourage exports of thermal coal should not interfere with or detract from the export of metallurgical coal.

As you all know, the United States has suddenly become an exporter of significant quantities of thermal coal to overseas customers. I have attached to my written presentation here an exhibit 1 showing some recent coal trade data compiled by the International Energy Agency. It shows that coal, thermal coal exports from the United States rose from virtually nothing in 1974, and I am excepting here any mention of exports to Canada which are not an issue here, to 14 million tons in 1980, of which about 8½ million tons went to Western Europe. Virtually all of that increase occurred during 1980.

I have had an opportunity to observe at close range the problems that this increase in trade has caused, as well as the attitudes that have developed on both sides of the Atlantic Ocean during this development period. The main message I would like to leave with you today is that just as the unfounded optimism that was generated by the growth in this trade during 1980, spilling over into early 1981, overstated the prospects for U.S. coal exports, the degree of negativism now sweeping over the marketplace is equally unjustified.

It seems to me that in 1980 we were being given pep talks by European governments and customers who frankly did not seem to have much confidence in the U.S. industry's ability to respond in a short period of time. Certainly there are horror stories about what happened to individual buyers in the U.S. marketplace—coal delivered off quality, suppliers unable to perform at all on contracts, and the well-known tremendous demurrage cost that developed at our east coast ports. However, I believe that most Europeans looking back have been astonished by the way the United States was able to respond to this tremendous increase in export demand for coals from the United States.

In general, I think our coal industry deserves high marks for demonstrating what a free, competitive industry can do. However, in their zeal, perhaps it was panic, to cover coal supply requirements, many European customers overbought. Part of this overbuying was intentional because the situation in Iran was causing great concern about energy supplies. Labor unrest in Australia was raising questions about availability of coal from that country. The coal strike in the United States was raising similar questions about supplies from the United States, and a general uneasiness about becoming overly reliant upon South Africa pervaded most buyers.

On top of all this, the situation in Poland began to deteriorate, thus eroding a long established and reliable source of coal supplies within Europe itself. Therefore, European coal buyers began to scramble for supplies.

On the other side of the equation, the demand side, the requirement for coal actually decreased from what was expected. Last winter in Europe was warmer than usual. Hydroelectric sources were larger than normal, and the growing recession in Western Europe decreased overall energy requirements substantially. Thus the requirements for coal in Western Europe dropped from expected levels.

The result is that a tremendous amount of coal that is well beyond normal inventories is today sitting on the ground throughout Europe, and especially in northern Europe. In my October trip around Europe I heard estimates as high as an 8-month supply for electricity, and 3 to 4 million tons of excess coal lying on the ground in northern European stockpiles at places like Rotterdam and Amsterdam. A good deal of this coal, incidentally, is on fire due to spontaneous combustion.

Further compounding the problem has been the tremendous increase in exports by the National Coal Board of Great Britain into northern Europe. The National Coal Board, as I understand it, expects to export about 10 million tons of coal this year as opposed to 4 million tons last year.

Finally, to complete the negative picture, the Government of South Africa has recently announced an increase in export allotments of about 22 million tons per year starting in the spring of 1982, with the further increase of about 14 million tons per year occurring at the end of this decade. It would seem then that the scramble for coal is presently over. Now we are getting down to the business of having to compete with other coal suppliers in the world to supply thermal coal to Western Europe.

I don't think we should be discouraged, nor do I think we should shrink from the competition. I have already heard a good deal of pessimistic talk in the coal industry, talk that the market really does not exist and American coal is not wanted. I think we must be very careful not to overreact to either the ups or the downs in the marketplace, but try to pursue a steady course somewhere down the middle.

You may ask what place the United States will have in the market with all this happening. I believe that there is one principal reason why the Western European countries will continue to buy coal in the United States—they need to maintain diversity and reliability in their coal supplies. Clearly we are not cost competitive with coals from South Africa, and we may not be cost competitive in the future with coals mined by the National Coal Board; depending on future freight rates, we may or may not be competitive with coals from Australia.

However, I think Western Europeans view us as a stable and reliable trading partner and will want to buy a part of their coal supply in the United States as long as they do not have to pay too large an economic penalty for doing so.

Unfortunately, this kind of market position for the United States means that we are the swing supplier, and that imports into Western Europe of U.S. coals will tend to fluctuate more widely than will the imports from other sources. However, I think our coal industry is large enough and sophisticated enough to accommodate these swings. As a country, I believe we should stand ready to participate in this business since I am firmly convinced that as a political matter, the United States must stand by its Western European allies to provide them with energy in so far as we can.

As some of you may know, my firm F. R. Schwab & Associates, was retained by the Department of Energy in 1980 to make a study of the Western European thermal coal markets as part of the Interagency Coal Export Task Force effort. The study we conducted forecasted exports to 14 European countries as shown in exhibit 2 of my written preparation. There are many factors, some of which I have discussed, which have caused us to revise our forecast downward slightly. I am sure you will be hearing more about these factors on a country-by-country basis as these hearings proceed.

Our overall estimate of the reduction in Western European thermal coal exports, the U.S. share of that market, is shown as exhibit 3 in my written presentation. The actual effect on effect on the forecasted exports of thermal coal to Western European countries appears to be fairly small—7 million tons less than originally forecasted for 1985, 5 million tons less than originally forecasted for 1990, and 6 million tons less than originally forecasted for the year 2000. I would add as a note of caution that those are rough estimates right now as to the effect that the present recession and other factors are going to have on our original forecast, but we believe that the thermal coal export market to Western Europe remains a significant opportunity for the U.S. coal industry.

What do I think can be done in a governmental sense to insure a rational, effective development of our export opportunities? As I mentioned, we will not be the lowest priced supplier of coal in the marketplace. In fact, it is likely to be quite to the contrary. Therefore, I believe we must be sure that no steps are taken that will cause the cost of our coals in the marketplace to increase significantly.

Conversely, anything that we can do that will increase the cost effectiveness of our coals in the marketplace should be seriously considered.

There are three governmental policy areas which I believe could have an impact on the cost of our coal exports and to which I would ask you to focus some attention. These three areas are, first, the cargo preference bill, which as I understand it, would require 40 percent of our coal exports to be shipped in American bottoms. If the estimates that I have heard are correct, that this could increase freight costs which are already a significant portion of the delivered cost of our coal to Western Europe by as much as three times, we could forget entirely about coal exports, thermal and metallurgical.

Second concerns railroad deregulation. I would hope that the actions being taken by the railroads, as deregulation of the proceeds, will not cause our export coals to become noncompetitive in the marketplace. I know that many of the coal producers in the U.S. are nervous about what will happen to them under deregulation. Unfortunately, the competitive choice of rail carriers that can haul coals suitable for export to Western Europe centers around two railroads. I would urge you to watch this area carefully since that environment can hardly be described as a free competitive marketplace.

The third issue concerns ports. It is clear that we need to have port facilities that are capable of meeting market requirements for exports. The long line of ships at Hampton Roads and Baltimore last year underscore the need for improvement in our port facilities and expansion of their capacity. I believe that the expansion in capacity will occur through the normal mechanisms of the marketplace, but with respect to port dredging, I understand that the port bill gives various ports the option with respect to dredging and recapturing these coals through user fees. I think this approach makes good sense as it now enables us to put the case back to our coal customers in Western Europe as to whether or not the savings they realize from using the larger ships will justify the expense of dredging our ports.

My own suspicion, if I can use a tired and hackneyed political cliche, my own suspicion is that many were hungry when the lunch was free, but that the appetites will diminish now that a cash register has been placed at the end of the cafeteria line. In any case, this should settle the issue of dredging ports and let us get on with other business.

Thank you, Senator.

[The prepared statement of Mr. Allen follows:]

SENATE SUBCOMMITTEE
ON ENERGY AND MINERALS RESOURCES
SENATOR JOHN WARNER
CHAIRMAN

BY

ZACHARIAH ALLEN
SENIOR VICE PRESIDENT
F. R. SCHWAB & ASSOCIATES, INC.

November 10, 1981

F.R. Schwab & Associates, Inc.
management consultants

Mr. Chairman, members of the committee, ladies and gentlemen. I would like to thank the subcommittee for giving me the opportunity this morning to present my views before you. I wish to present to this subcommittee a picture of guarded optimism about the prospects for American coal exports and to make some suggestions of a legislative nature to you.

As you all probably know, the United States has long held the position of predominance in the seaborne trade of coal used for metallurgical purposes. We are indeed fortunate in that much of the reserve base in the United States is of premium metallurgical coal quality. This should continue to be a benefit to our own steel industry as well as to the steel industries abroad. However, since that trade is already well developed, and since the steel industries of the world are not growing at more than a very slow pace, the metallurgical coal trade is not putting additional pressures on our socio-economic systems and, therefore, it is not a matter of real concern here today. However, I would remind you that the metallurgical coal trade is today, and will continue to be, a major export for the United States and that anything we do to encourage exports of thermal coal should not interfere with or detract from the exports of metallurgical coal.

As you all know, the United States has suddenly become an exporter of significant quantities of thermal coal to overseas customers. I have attached to my written presentation Exhibit I, showing recent coal trade data as compiled by the International Energy Agency. It shows that thermal coal exports from the United States rose from virtually nothing in 1974 (except thermal coal exports to Canada which are not an issue here) to 14 million tons in 1980, of which 8.5 million tons went to western Europe. Virtually all of that increase occured during 1980.

I have had an opportunity to observe at close range the problems that this increase in trade caused as well as the attitudes that developed on both sides of the Atlantic Ocean during this development period. The main message that I would like to leave with you today is that just as the unfounded optimism that was generated by the growth in this trade during 1980, spilling over into early 1981, overstated the prospects for U. S. coal exports, the degree of negativism now sweeping over the marketplace is equally unjustified.

It seems to me that in 1980, we were being given pep talks by European governments and customers who frankly did not seem to have much confidence in the U. S. industry's ability to respond in a short period of time to increases in demand. Certainly there are horror stories about what happened to individual buyers in the U. S. marketplace: coal delivered off quality, suppliers unable to perform at all on contracts, and the well known tremendous demurrage costs that developed in the east coast ports. However, I also believe that most Europeans, looking back, have been astonished by the way the U. S. was in fact able to respond to this tremendous increase in export demand for coals from the United States.

In general, I think our coal industry deserves high marks for demonstrating what a free competitive industry can do.

However, in their zeal, perhaps it was panic, to cover coal supply requirements, many European customers overbought. Part of this overbuying was intentional because the situation in Iran was causing grave concern about energy supplies, labor unrest in Australia was raising questions about availability of coal from that country, the coal strike in the United States was raising similar questions about supplies of coal from this country, and a general uneasiness about becoming overly reliant upon South Africa pervaded most buyers. On top of all this, the situation in Poland began to deteriorate quickly, thus eroding a long established and reliable source of coal supplies within Europe itself. Therefore, European coal buyers began to scramble for supplies.

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Finally, to complete the negative picture, the government of South Africa has recently announced an increase in export allotments of about 22 million tons per year starting in the spring of 1982 with a further increase of about 14 million tons per year occuring at the end of this decade.

It would seem then that the scramble for coal is presently over. Now, we are going to get down to the tough business of having to compete with other coal suppliers in the world to supply thermal coal to western Europe.

I do not feel we should be discouraged, nor do I think we should shrink from the competition. I have already heard a good deal of pessimistic talk in the industry: talk that the market really does not exist and that American coals are not wanted. I think we must be very careful not to overreact to either the ups or downs in the marketplace, but to try to pursue a steady course somewhere down the middle.

You may ask what place the United States will have in the market with all of this happening. I believe that there is one principal reason why many of the western European countries will continue to buy coal in the United States: they need to maintain diversity and reliability in their coal supplies. Clearly, we are not cost competitive with coals from South Africa and we may not be cost competitive in the future with coals mined by the National Coal Board. Depending on future freight rates we may or may not be competitive with coals from Australia. However, I think western Europeans view us as a stable and reliable trading partner and will want to buy a part of their coal supply in the United States as long as they do not have to pay too large an economic penalty for doing so.

Unfortunately, this kind of market position for the United States means that we are the "swing" suppliers, and that imports into western Europe of U. S. coals will tend to fluctuate more widely than will the imports from other sources. However, I think our coal industry is large enough and sophisticated enough to accommodate these swings. As a country, I believe we should stand ready to participate in this business since I am firmly convinced that, as a political matter, the U. S. must stand by its western European allies to provide them with energy insofar as we can.

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There are many factors, some of which I have discussed, which have caused us to revise our forecast downward slightly. I am sure that you will be hearing more about these factors on a country-by-country basis as these hearings proceed. Our overall estimate of the reduction in western European thermal coal imports and the U. S. share of that market is shown as Exhibit III in my written presentation. The actual effect on the forecasted exports of thermal coal to western Europe is quite small: 7 million tons less than originally forecasted for 1985, 5 million tons less than originally forecasted for 1990 and 6 million tons less than originally forecasted for the year 2000.

Thus, we continue to believe that the thermal coal export market to western Europe is a significant opportunity for the U. S. coal industry.

Finally, what do I think can be done in a governmental sense to ensure a rational and effective development of our export opportunities. As I mentioned, we will not be the lowest price supplier of coal in the marketplace. In fact, it is likely to be quite to the contrary. Therefore, I believe that we must make sure that no steps are taken that will cause the cost of our coal in the marketplace to increase significantly. Conversely, anything we can do that will increase the cost effectiveness of our coals in the marketplace should be seriously considered. There are three governmental policy areas which I believe could have an impact on the costs of our coal exports and to which I would ask you to direct your attention.

These three areas are:

- First is the Cargo Preference Bill which, as I understand it, would require that 40 percent of our coal exports would have to be shipped in American bottoms. If the estimates that I have heard are correct, that this could increase freight costs, (which are already a significant portion of the delivered cost of our coal to western Europe), by as much as three times, we could forget about coal exports (thermal and metallurgical).

- Second, concerns railroad deregulation. I would hope that the actions being taken by the railroads as deregulation of them proceeds will not cause our export coals to become noncompetitive in the marketplace. I know that many of the coal producers in the United States are very nervous about what will happen to them under deregulation. Unfortunately, the competitive choice of rail carriers that can haul coals suitable for export to western Europe centers mainly around two railroads. I would urge you to watch this area carefully since that environment can hardly be described as a free competitive marketplace.

- The third issue concerns ports. It is clear that we need to have port facilities that are capable of meeting market requirements for exports. The long lines of ships at Hampton Roads and Baltimore last year underscore the need for improvement in our port facilities and an expansion of their capacity. I believe that the expansion in capacity will occur through the normal mechanisms of the marketplace.

With respect to port dredging, I understand that the Port Bill gives various ports the option with respect to dredging and recapturing those coals through user fees. I think this approach makes good sense as it now enables us to put the case back to our coal customers in Western Europe as to whether or not the savings they realize from using the larger ships will justify the expense of dredging our ports. My own suspicion is that many were hungry when the lunch was free but that appetites will diminish now that a cash register has been put at the end of the cafeteria line. In any case, this should settle the issue of dredging ports and let us get on with other business.

Thank you for your kind attention.

Exhibit I (1)

WORLD COAL PRODUCTION
(In Million Metric Tons)

	1973	1974	1979	1980^{e}
United States	530	537	657	753
USSR	461	473	501	496
China	430	450	663	630
EEC (9)	270	243	239	247
of which U. K.	130	109	121	128
Eastern Europe (excluding USSR)	195	201	240	235
of which Poland	157	162	201	195
Asia (excluding China)	160	167	205	215
Others	163	168	248	263
of which South Africa	62	66	103	115
Australia	56	58	83	83
Canada	17	18	28	31
Total	2,239	2,290	2,753	2,800

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e: Estimates (U. S. production source: National Coal Association)

Source: International Energy Agency

Exhibit I (2)

WORLD SEA GOING TRADE
(In Million Metric Tons)

Metallurgical Coal*

	1970	1974	1979	1980
Exporters				
United States	42	40	38	54
Australia	18	28	34	32
Canada	4	10	13	14
Poland	5	10	8	6
Rest of World	6	7	16	14
Total	75	95	108	120
Importers				
Western Europe	24	28	35	39
EEC	17	19	22	25
Others	7	9	13	14
South East Asia	50	64	65	71
Japan	50	63	56	62
South Korea	-	1	4	4
Taiwan	-	-	5	5
Others	-	-	-	-
Rest of the World	1	4	8	10
Latin America			6	7
Others			2	3

---

*Total World coal trade including intra-regional trade (mostly by train in Europe) and between United States and Canada was 229 million tons in 1979 and 250 million tons in 1980.

Exhibit I (3)

WORLD SEA GOING TRADE
(In Million Metric Tons)

Steam Coal*

	1970	1974	1979	1980
Exporters				
South Africa		0.5	21	25
United States			2	14
Australia			6	9
Poland			18	16
Rest of the World			7	8
of which Canada			1	1
Others			6	7
Total	20	23	54	72
Importers				
Western Europe	20	23	44	57
EEC	16	19	38	50
Others	4	4	6	7
South East Asia	-	-	5	10
Japan	-	-	2	6
South Korea	-	-	2	2
Taiwan	-	-	1	2
Others	-	-	-	-
Rest of the World	-	-	5	5
Grand Total Exporters (Combined Steam And Metallurgical Coal)	95	118	162	192

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*Total World coal trade including intra-regional trade (mostly by train in Europe) and between United States and Canada was 229 million tons in 1979 and 250 million tons in 1980.

Exhibit I (4)

PORT CAPACITIES
(Million Metric Tons Per Year)

Existing, Under Construction And Planned In The Coal Exporting Countries

	Existing*	Under Construction**	Planned**	Total
United States	90	60	150	300
Australia	64.2	34.5-37.5	44	142.7-145.7
Queensland	37.7	12	16	65.7
Hay Point	22	-	6	28
Gladstone	15	12	10	37
Bowen	0.7	-	-	0.7
New South Wales	26.5	22.5-25.5	28	77-80
Port Kembla	7	12-15	2	21-24
Newcastle	15	10	25	50
Balmain (Sydney)	4.5	0.5	1	6
Canada	16.5	29	4	49.5
Roberts Bank	10	20	-	30
Neptune Terminals	3.5	-	-	3.5
Port Moody	1	-	-	1
Prince Rupert	-	7	-	7
Thunder Bay	2	2	4	8
South Africa***	26	20	-	46
Richards Bay	24	20	-	44
Durban	2	-	-	2
Poland	25	-	5	30
Total	222	145	203	570

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*Early 1980.

**In operation by 1983 at the latest for the capacities under contruction and 1986 for the capacities projected.

***The South African government has recently increased its coal export permits from 25 to 44 million tons. A further expansion to 65 million tons is expected in the spring of 1982. Ultimately, by 1990, these permits will total 80 million tons - however, these last 15 million tons will be allocated at the discretion of the government.

Source: Charbonnages de France, Service "Communaute-Etranger."

Exhibit II (1)

FORECAST OF SOURCES OF SUPPLY OF THERMAL COAL[1] TO MEET ESTIMATED IMPORT DEMAND IN WESTERN EUROPE - 1985
(MTCE)

Importers	Inter-EEC	Poland	Republic Of South Africa	Australia	Canada	Colombia	Other	United States	Estimated Imports[5]
Norway	-	0 - 0.3	-	0 - 0.3	0 - 0.3	-	0 - 0.2	0.1- 0.2	0.65
Sweden[4]	-	1.0-2.00	-	0.2- 0.3	-	-	1.0-2.0[3]	-	3.3
Finland	-	2.0- 4.0	-	0 - 2.0	0 - 3.0	0 -1.0	0 - 1.0	0 - 3.0	4.0-7.0
Denmark	0 -0.5	0 - 2.5	0 - 3.5	0 - 1.0	0 - 0.4	0 -1.5	0 - 0.7	1.0- 2.0	10.7-11.1
West Germany	0.5-1.0	2.0- 3.5	1.5- 3.0	1.5- 2.5	0.5- 1.8	0 -1.0	0.5- 1.0	1.5- 4.0	10.0-10.5
Austria[4]	-	1.0- 1.5	0 - 1.0	0 - 1.0	-	-	0 - 1.0	0 - 1.0	1.5-3.0
Belgium	0.3-0.6	0.5- 1.2	2.0- 3.5	0.6- 2.5	0.1- 1.0	-	0.2- 1.0	1.5- 2.5	8.3*
Netherlands	0.2-0.6	0.5- 1.2	0 - 1.0	1.5- 2.5	0.1- 0.8	-	0.2- 1.0	0.5- 1.8	5.5
United Kingdom[2]	0 -0.5	0.5- 1.0	0 - 0.3	0.3- 2.0	0.3- 1.8	-	0.2- 2.0	1.0- 2.0	7.0*
Ireland	0.3-0.8	0 - 0.5	0 - 0.6	0 - 0.6	0 - 3.6	-	0 - 0.2	0.2- 0.7	2.1*
France	0.3-0.8	0 - 1.0	4.0- 6.5	1.5- 3.0	0.5- 2.0	-	1.5- 2.5	2.0- 3.0	12.7*
Italy	-	2.0- 3.0	3.2- 4.0	2.7- 4.0	0 - 1.1	-	0.3- 2.0	3.2- 4.0	14.6
Spain	-	0.8- 1.4	3.0- 3.2	2.0- 3.4	0.3- 0.6	-	0.4- 0.6	3.0- 4.0	11.0**
Greece	0 -0.2	0 - 0.2	0.2- 1.0	0 - 0.4	0 - 0.4	-	0.1- 0.5	0.2- 0.8	1.4*
Totals[6]	1.5-4.9	10.3-23.3	13.9-27.6	10.3-25.6	1.8-14.5	0 -3.50	4.4-15.7	14.2-29.1	92.75-98.15

Note: 1. All coal demand is for 1.2 percent sulfur maximum except as noted:

*1.2 to 1.8 percent sulfur for one-third of demand.
**1.8 to 2.5 percent sulfur for one-third of demand.

2. Possible exports from the United Kingdom to other Western European countries have not been included in this forecast.

3. Including Canada, Colombia, United States, and Inter-EEC.

4. Sweden and Austria figures are subject to change.

5. Totals are taken from estimates of import demand for each country. The total for each country has been broken down into possible ranges for various sources of supply. In constructing this forecast, the minima cannot exceed the total for each country.

6. Totals for each country may come close to or exceed the tonnage FRS&A estimates will be available for exports. In such cases the exporting countries may allocate the available quantities among their customers.

FORECAST OF SOURCES OF SUPPLY OF THERMAL COAL[1] TO MEET ESTIMATED IMPORT DEMAND IN WESTERN EUROPE - 1980
(MTCE)

Importers	Inter-EEC	Poland	Republic Of South Africa	Australia	Canada	Colombia	Other	United States	Estimated Imports[5]
Norway	-	0 - 0.2	0 - 0.2	0 - 0.4	0 - 0.4	0 - 0.3	0 - 0.3	0.1- 0.3	0.75
Sweden[4]	0 - 1.5[3]	0 - 2.0	-	3.0- 5.0	0 - 2.0	0 - 1.0	1.0- 3.0	0 - 3.0	8.7
Finland	-	2.0- 5.0	-	1.0- 3.0	1.0- 3.0	0 - 1.0	1.0- 2.0	1.0- 3.0	6.0-10.0
Denmark	0 - 1.0	0 - 4.0	3.0- 6.0	1.0- 4.0	2.0- 3.0	2.0- 3.0	-	1.0- 4.0	13.7-14.4
West Germany	0.5- 1.5	2.0- 5.0	3.0- 6.0	2.5- 4.0	0.5- 2.5	0 - 1.0	1.0- 3.0	2.0- 6.0	20.0
Austria[4]	-	1.0- 2.0	1.0- 3.0	1.0- 3.0	-	-	0 - 1.0	0 - 3.0	4.0-9.0
Belgium	0.2- 2.5	0.5- 1.2	2.0- 4.5	2.0- 4.0	0.5- 2.0	0.5- 1.5	0.2- 2.0	2.2- 4.5	15.3*
Netherlands	0 - 1.0	0.5- 1.4	0 - 1.0	2.5- 5.0	0.5- 2.5	1.0- 3.0	0.2- 2.0	0.5- 2.5	12.5
United Kingdom[2]	0 - 0.5	0.5- 1.5	0 - 1.0	0.5- 3.0	0.5- 3.0	0.5- 1.0	0.3- 2.0	1.5- 2.5	7.8*
Ireland	0.3- 2.5	0 - 1.0	0 - 1.0	0 - 1.5	0 - 1.5	0 - 0.6	0 - 0.5	0.4- 1.5	4.5*
France	0 - 2.0	0 - 1.0	3.0- 5.0	2.0- 4.0	0.5- 2.5	0.5- 1.5	1.0- 3.0	1.8- 4.0	12.0*
Italy	-	2.0- 4.0	4.8- 6.0	10.0-14.0	0.8- 2.0	2.0- 3.0	1.0- 3.0	4.0- 8.0	37.7
Spain	-	1.7- 3.2	2.0- 3.0	2.5- 3.5	0.5- 1.0	1.0- 2.0	0.5- 1.0	3.0- 5.0	13.8**
Greece	0 - 1.0	0 - 0.2	0.6- 1.0	0 - 0.6	0 - 0.8	0 - 0.5	0.1- 1.0	0.2- 1.2	3.0*
Totals[6]	1.0-13.5	10.2-31.7	19.4-37.7	28.0-55.0	6.8-26.2	7.5-19.4	6.3-23.8	17.7-48.5	160.45-170.15

Note: 1. All coal demand is for 1.2 percent sulfur maximum except as noted:

*1.2 to 1.8 percent sulfur for one-third of demand.
**1.8 to 2.5 percent sulfur for one-third of demand.

2. Possible exports from the United Kingdom to other Western European countrier have not been included in this forecast.

3. From EEC sources.

4. Sweden and Austria figures are subject to change.

5. Totals are taken from estimates of import demand for each country. The total for each country has been broken down into possible ranges for various sources of supply. In constructing this forecast, the minima cannot exceed the total for each country.

6. Totals for each country may come close to or exceed the tonnage FRS&A estimates will be available for exports. In such cases the exporting countries may allocate the available quantities among their customers.

F.R. Schwab & Associates, Inc.
management consultants

Exhibit II (3)

FORECAST OF SOURCES OF SUPPLY OF THERMAL COAL[1] TO MEET ESTIMATED IMPORT DEMAND IN WESTERN EUROPE - 2000
(MTCE)

Importers	Inter-EEC	Poland	Republic Of South Africa	Australia	Canada	Colombia	Other	United States	Estimated Imports[5]
Norway	-	0 - 0.6	0 - 0.8	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0.4- 1.2	2.7
Sweden[4]	0 - 2.0[3]	1.0- 4.0	-	4.5- 6.0	0 - 2.0	0 - 2.0	1.0- 5.0	0 - 7.0	23.0
Finland	-	2.0- 8.0	-	2.0- 5.0	2.0- 5.0	0 - 1.0	2.0- 3.0	2.0- 5.0	10.0-18.0
Denmark	0 - 2.0	0 - 5.0	3.0- 6.0	2.0- 5.0	2.0- 5.0	3.0- 5.0	-	1.0- 2.0	8.4-20.0
West Germany	1.0- 5.0	2.0- 6.0	5.0-11.0	5.0-11.0	1.0-10.0	0 - 5.0	1.0- 5.0	5.0-10.0	33.0
Austria[4]	NO GUESS AVAILABLE AT THIS TIME								
Belgium	0.2- 4.5	0.5- 2.0	1.0- 7.0	2.0- 5.5	0.5- 5.0	0.5- 3.0	0.2- 6.0	4.0- 8.0	24.6
Netherlands	0 - 0.3	0.5- 2.0	0 - 3.0	3.5- 8.0	2.0- 6.0	1.0- 4.0	0.5- 6.0	2.5-10.0	34.8*
United Kingdom[2]	0 - 0.5	0.5- 1.5	0 - 2.0	0.5- 3.0	0.5- 3.0	0.5- 1.0	0.3- 2.5	1.5- 2.5	8.5*
Ireland	0.3- 3.5	0 - 1.0	0 - 1.0	0 - 2.0	0 - 2.0	0 - 1.0	0 - 0.5	0.4- 2.0	6.5*
France	0 - 3.0	0 - 1.0	1.0- 5.0	1.0- 5.0	0.5- 4.0	0.5- 3.0	2.0-10.0	3.5-10.0	22.0*
Italy	-	2.0- 4.0	5.0- 6.0	12.0-16.0	3.0- 7.0	4.0- 6.0	2.0- 8.0	7.0-12.0	45.0-66.0
Spain	-	2.0- 3.5	4.5-10.0	4.0- 8.0	2.0- 5.0	3.0- 6.0	3.0- 5.0	8.0-15.0	33.0-50.0**
Greece	0 - 1.0	0 - 0.2	0.6- 1.0	0 - 1.4	0 - 1.4	0 - 1.2	0 - 1.2	0.2- 1.4	3.6*
Totals[6]	1.5-21.8	10.5-38.8	20.1-62.8	38.5-78.0	13.5-56.4	12.5-39.2	12.0-51.2	35.5-86.1	258.1-315.6

Note: 1. All coal demand is for 1.2 percent sulfur maximum except as noted:

*1.2 to 1.8 percent sulfur for one-third of demand.
**1.8 to 2.5 percent sulfur for one-third of demand.

2. Possible exports from the United Kingdom to other Western European countries have not been included in this forecast.

3. From EEC sources.

4. Sweden and Austria figures are subject to change.

5. Totals are taken from estimates of import demand for each country. The total for each country has been broken down into possible ranges for various sources of supply. In constructing this forecast, the minima cannot exceed the total for each country.

6. Totals for each country may come close to or exceed the tonnage FRS&A estimates will be available for exports. In such cases the exporting countries may allocate the available quantities among their customers.

Exhibit III

THERMAL COAL TRADE
(MTCE)

	1979	1980	1985	1990	2000
Import Demand of Western Europe	61	n.a.	77	148	258
U. S. Exports To Western Europe	1.0	8.5	15	28	55
Change from previous forecast of U. S. exports	-	-	-7	-5	-6

Senator WARNER. That is a very succinct statement. Back on page 4 you discussed the excess coal presently in Europe. You describe 3 to 4 million tons.

Could you interpret that in terms of months of supply?

Mr. ALLEN. Well, depending on exactly which markets that coal is intended for, it could be up to a 6-months supply of coal.

Senator WARNER. The main strength of our market then is the diversity feature?

Mr. ALLEN. Diversity and reliability; I think we have demonstrated—there have been some bad experiences in the past that the industry has had to live down, but I think we have demonstrated to people in Europe somewhat successfully that the United States is a reliable source of supplies, and if we could just get the demurrage situation straightened out, I think we would be very happy.

Senator WARNER. Senator Heinz, did you have a question?

Senator HEINZ. No questions, Mr. Chairman. Mr. Chairman, I also want to apologize. I have a bill on the floor that I have to manage so I am going to go over to the Senate floor.

Thank you very much, Mr. Chairman, for an excellent hearing.

Senator WARNER. We have already made an examination into the port facility question. We will be December the third looking at the railroad situation. The cargo preference was an issue that has been before the Congress many times. I would not endeavor to predict how that one will turn out.

Now in addition to the diversity, it has always been the chairman's view that one of the keys to our American industry has been the willingness of its customers to enter into some long-term contracts, which contracts in some respects could provide a basis for borrowing to enhance the port facilities.

In your trip through Europe, was this subject raised?

Mr. ALLEN. Yes, sir. We have discussed the question of long-term contracts with a number of people in Europe. It has always mystified me that in fact there are not more long-term contracts being signed. I think at present anyway the short-term market is perfectly adequate, and people feel they can get better prices on short-term contracts. The gentlemen who will testify here before you this morning are probably better equipped to tell you why they pursue the various purchasing strategies that they do, but I agree with you. The long-term contract is indeed the mechanism around which the entire infrastructure is going to fall into place. Without long-term contracts it is very difficult to invest in ports and rail cars and open a coal mine and all the rest of it.

Traditionally, the coal industry does not tend to open coal mines on speculation. They have got to have some idea of where their coal is going to go to before they invest, oh, $50 million or a $100 million to open a coal mine.

Senator WARNER. Generally could you compare the progress that you saw in Europe with respect to their enhancement of port facilities with—that of the facilities in the United States. Of course, we know what is taking place or not taking place in the United States, but a comparison would be helpful.

Mr. ALLEN. There is a great deal going on in Europe, and I am sure you will hear about that. Mr. Sachmann who will be testifying before you, of course, has his own port which is large, has large stockpile areas, and he certainly is well situated. Rotterdam is a major port, and I just toured Rotterdam the other day, and I must say that it is one of the most impressive things to see when you actually get there.

There is no port in the United States which in any way compares with Rotterdam. It is just mile after mile of large ship handling facilities. The new Panamax coal terminal which will hopefully be built will be able to handle up to 200,000 deadweight ton vessels, and I believe they will have the facilities there to stockpile something like 5 million tons of coal. The existing coal terminal at Maasylakte which is constructed for iron ore and coal is a very impressive facility. They have got 800,000 tons of coal on the ground right now. That is the one where there is a lot of coal on fire.

There are three other facilities there. Amsterdam is building a new extension of their facilities outside the locks which will give them deeper draft vessel capability. They are limited to 45 feet right now because of the lock at Amsterdam.

Senator WARNER. Do you have feeling as to what the comparable size ship draft will eventually be?

Mr. ALLEN. That is a very interesting question. I would urge you to ask Mr. Sachmann his views on that when he is here.

Senator WARNER. I would hope any of the witnesses might feel free to give us their views on that.

Mr. ALLEN. Mr. Sachmann is particularly well known for his views on this subject.

My view is that the large vessels are certainly going to be applicable to the long haul like Australia and South Africa. Whether in fact the economics of maintaining the tremendous inventories that are implied with the large vessels, whether those economics really work out for the coal trade from the United States. I think is very much of a question. The Coal Industry Advisory Board is going to be looking at this question in some detail over the next year, but I would guess that the cost of inventorying these large amounts of coal are going to turn out to make—if you can get smaller shipments on a reliable basis it may turn out to be economically favorable. By smaller shipments I mean 60,000, 70,000, 80,000 tons as opposed to a 100,000.

Senator **Warner**. Not only the cost of inventory, but apparently there is the risk in terms of self-destructions and fire. Is that a factor?

Mr. **Allen**. It is a factor, but if you handle the coal properly it could be avoided.

Senator **Warner**. I would have thought that the facilities that are now on fire would have had extensive abilities for handling coal.

Mr. **Allen**. I asked them at Rotterdam and Maasvlakte, and they said they for something like 50 cents a ton will compact the coal pile so that the risk of combustion drops to practically nothing, but in fact the people who have been inventorying coal haven't wanted to spend the money unless they absolutely had to, and now they are going to compact the coal because they have to. They have been reluctant to spend the money to take the precautions necessary, but the combustion is a problem, and there have been some, as you know, hot ships in the United States that had to offload. At Long Beach the Coast Guard I believe was on the verge of ordering one ship sunk if the story is true. There have been a lot of problems probably in the Illinois basin coals.

Senator **Warner**. I think it would be important for you to put into the record just how that combustion is caused. Someone might make inquiry and I would like to have it for the record. Spontaneous combustion is due to a certain destabilized condition of oxygen and pressure?

Mr. **Allen**. There are a lot of factors, and I honestly don't know the answer to this. In fact, I have been trying to find out myself what in fact the actual chemical reactions are because it has been said that it is high sulfur coal, but then when I was at Rotterdam I see all the South African coal on fire and that is very low sulfur, 0.5 percent sulfur coal, so it isn't just the sulfur content. It isn't volatile matter because that is a mid-volatile coal. It is obviously a complex chemical question. Whether or not anybody here could give you a better answer than that I don't know, but I can't give you an answer.

Senator **Warner**. If any of the witnesses have the opportunity, I would appreciate their views. We should have something in the record on that.

We thank you very much, Mr. Allen, for a more enlightening and competent statement.

Mr. **Allen**. Thank you.

Senator **Warner**. We will now have Mr. Vaara, Director General, Energy Department, Ministry of Trade and Industry, the Government of Finland.

Would you like to have anyone else join you at the table, sir?

Mr. **Vaara**. No.

Senator **Warner**. Thank you.

STATEMENT OF ERKKI VAARA, DIRECTOR GENERAL, ENERGY DEPARTMENT, MINISTRY OF TRADE AND INDUSTRY, GOVERNMENT OF FINLAND

Mr. **Vaara**. Mr. Chairman, in the first place, I would like to thank you very much for the opportunity to be here this morning.

Finland holds a long tradition as a user of coal, although she has no coal resources of her own.

Senator **Warner**. Would you draw the microphone slightly closer, please?

Mr. **Vaara**. Coal accounts for 10 to 15 percent of the total energy requirements in Finland. In 1980, the consumption reached the highest level so far; approximately 5½ million tons of steam coal were used in energy production, and around 1 million tons of coke in steel industries.

In the short run, the coal use will decline due to the temporary overcapacity situation in our power production. Only some 3 million tons of steam coal are needed annually during this and the next few years, but we are building up our stockpile anyway.

The electricity demand will, however, continue to grow and more coal will be needed. The record level in 1980 is expected to be reached by the mid-80's and around 8 million tons per year per annum will be used by 1990.

The growth of coal demand will not occur only in power generation. The two other main sectors are district heating and industrial utilities where demand will double during the next 10 to 15 years.

The prospects for the 1990's depend largely on the choice between coal and nuclear power for the major power capacity expansions. The pure pro-coal case in the power capacity expansions envisages triple total demand of steam coal by the mid-1990's. Even in the nuclear option the growth in other sectors will double the needs compared to the 1981 level. Up until 1980, the main part of our coal, 80 to 90 percent, came from Poland, and the rest from the Soviet Union. Due to Polish events, coal flows have changed and new suppliers have entered our market, and this is mainly the United States and the United Kingdom. Today we have four main suppliers; namely, United States, Poland, United Kingdom, and the Soviet Union.

Coal imports from more distant sources will definitely account for an essential and permanent part in our coal imports in the future. The United States together with the United Kingdom are the most natural and attractive new sources.

The expected important role of coal among the imported energy sources is in line with the government energy policy of Finland. The Government has not, however, introduced any financial incentives or other measures to stimulate fuel switching from oil to coal. The relative prices alone have proved to be effective enough to encourage this process.

The main goal of the coal policy is to secure continuous and economical coal supplies. The users and importers will take the main responsibility of practical measures, and the Government supports the process where appropriate.

The high level of security will be based on mainly three elements—first, diversification of supplies, long-term contracts, and possible participation in production.

Long-term contracts with new suppliers are under investigation. We believe that the suppliers appreciate continuity. Possibilities for joint ventures in coal production are being examined at the moment. So far this has not led to any concrete results.

As long as the coal was shipped within the Baltic Sea area—well, the existing coal ports in Finland are too small and shallow to receive and handle large-scale transoceanic imports. New, deeper ports are needed. A port for Panamax-size vessels is now under construction and will be ready by late 1983. Another one for over 100,000 tonners is planned and expected to be in use in 1985.

The policy question concerning coal security is whether we need an established system for safety of stockpiles. Such a system exists now only for oil. The matter is under consideration, and the Government may take the necessary steps to introduce the system next year. Finnish steam coal buyers believe that the United States is an alternative worth considering when diversifying present supply sources, and that the United States coal exporters have potential to satisfy growing demand for coal. We greet with satisfaction all the efforts that are made to develop the United States as a reliable, competitive, exporter that is capable of supplying increased quantities of steam coal.

Bottlenecks connected with infrastructure, primarily harbor capacity and inland transportation, are commonly known. The speedy solution of these problems is extremely important. The Finnish buyers expect to find themselves very soon in a situation in which Panamax-size vessels and even larger vessels could haul coal from the United States on a consecutive voyage basis without the risk of demurrage.

The idea of the United States as a reliable supplier of coal is also necessary due to other kinds of disturbances in deliveries like frequency and effects of strikes and export limitations which have been experienced in the past. The success of the United States in the international coal market essentially depends upon its price competitiveness. In this respect, the development has lately been apprehensive, for example, as far as railroad freights are concerned.

The biggest steam coal consumers in Finland, the power utilities and energy companies, are interested and ready to invest in foreign coal mining business. In the first place, it could be achieved so that the Finnish companies would become shareholders in some coal mining companies in the United States. Before final decision, the quality and amount of coal have to be checked, and a preliminary feasibility study of the transportation possibilities would have to be done.

We see the Finnish participation in U.S. coal mining as a very realistic possibility to secure a continuous and economical supply of coal to the Finnish powerplants.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Vaara follows:]

Subcommittee on Energy and Mineral Resources

United States Senate

hearings on

"America's Role in the World Coal Export Market"

STATEMENTS BY

The Ministry of Trade and Industry of Finland

"Coal Prospects and Coal Policy of Finland"

and

The Coal Buyers of Finland

"The USA as a Supplier"

A. STATEMENT BY THE MINISTRY OF TRADE AND INDUSTRY OF FINLAND

COAL PROSPECTS AND COAL POLICY OF FINLAND

Coal needs

Finland holds a long tradition as a user of coal, although she has no coal resources of her own. Coal accounts for 10 to 15 per cent of the total energy requirements in Finland.

In 1980 the consumption reached the highest level so far. Approximately 5 1/2 million tons of steam coal were used in energy production and around 1 million tons of coke in steel industries.

In the short run the coal use will decline due to the temporary overcapacity situation in power production. Only some 3 million tons of steam coal are needed annually during this and the next few years.

The electricity demand will, however, continue to grow and more coal will be needed. The record level of 1980 is expected to be reached by the mid-80's and around 8 million tons per annum will be used by 1990.

The growth of coal demand will not occur only in power generation. The two other main sectors are district heating and industrial utilities, where demand will double during the next 10 to 15 years.

The prospects for the 1990's depend largely on the choice between coal and nuclear power for the major power capacity expansions.

The pure pro-coal case envisages triple total demand of steam coal by the mid-90's. Even in the nuclear option the growth in other sectors will double the needs compared to the 1981 level.

As far as metallurgical coal is concerned, no major changes on volume are expected. The only structural change may occur if the steel industries decide to build their own coking plant. The current imports of coke would then be partly or totally replaced by the imports of coking coal.

Table: Coal use in Finland 1980-1995, million metric tons

	1980	1985	1990	1995
Electricity	3,5	2,3	3.7	3,2 - 5,3
District heating	1,2	1,8	2,5 mt	2,8
Industry	0,9	1,5	1,8	1,9
Total steam coal	5,6	5,6	8,0	8,0 - 10,0
Met. coal	1,1	1,2	1,2	1,2

Suppliers

Up until 1980 the main part of our coal (80 to 90 per cent) came from Poland and the rest from the U.S.S.R. Due to the Polish events, coal flows have changed and new suppliers have entered our market (USA, UK).

Table: Imports of hard coal 1979-1981, million metric tons

	1979	1980	1981E
Poland	4,0	3,5	1,7
USSR	0,6	0,5	0,7
USA	-	0,5	1,6 mt
UK	-	-	1,0
Total	4,6	4,5	5,0

The future export potential of Poland cannot easily be assessed today. The best guess for the next few years' deliveries is around 2 mill. tons per annum, being around a half of the contracted volume. In the long run we expect increased supplies from Poland but the growth rate will be obviously slow.

Coal imports from more distant sources will definitely account for an essential and permanent part in our coal imports in the future. The USA together with the UK are the most natural and attractive new sources. On the other hand, the current handling capacity of our ports limits the potential supplying markets.

Coal policy

The expected important role of coal among the imported energy sources is in line with the Government energy policy. The Government has not, however, introduced any financial incentives or other measures to stimulate fuel-switching from oil to coal. The relative prices alone have proved to be effective enough to encourage this process.

The main goal of the coal policy is to secure continuous and economical coal supplies. The new market situation has created the following four major activity areas. The users and importers will take the main responsibility of practical measures and the Government supports the process where appropriate.

1. Securing the supplies

The high level of security will be based on three elements:
- diversification of supplies
- long term contracts
- possible participation in production.

The diversification of purchases from several sources from now on will be one of the leading principles in our coal import policy. Along with the port development in Finland the importers can spread out their purchases further in the future.

Long term contracts with new suppliers are under investigation. We believe that the suppliers appreciate continuity.

Possibilities for joint ventures in coal production are being examined at the moment. So far this has not led to any concrete results.

2. Cooperation

As long as the coal was shipped within the Baltic Sea area, most users imported their coal on their own. This cannot be economical for transoceanic imports, not at least for smaller users.

Coal importing efforts have to be combined. A new kind of cooperation has already begun among the coal users and coal importers.

3. Transportation

The existing coal ports are too small and shallow to receive and handle large-scale transoceanic imports. New, deeper ports are needed.

A port for Panamax-size vessels is now under construction and will be ready by late 1983. Another one for over 100 000-tonners is planned and expected to be in use in 1985.

Part of the coal will continue to be shipped directly to smaller ports.

Services available in foreign ports in Scandinavia and elsewhere are also being examined.

4. Safety stockpiles

The fourth policy question concerning coal security is whether we need an established system for safety stockpiles. Such a system exists now only for oil.

The matter is under consideration and the Government may take the necessary steps to introduce the system next year.

B. STATEMENT BY THE COAL BUYERS OF FINLAND

USA AS A SUPPLIER

Finnish steam coal buyers believe that the USA is an alternative worth considering when diversifying present supply sources, and that US coal exporters have potential to satisfy growing demands for coal. We greet with satisfaction all the efforts that are made to develop the USA as a reliable, competitive exporter that is capable of supplying increased quantities of steam coal.

As far as we can see, it is worth paying attention to the following viewpoints, which will certainly contribute to attaining the targets of the US coal export industry in the Finnish market.

Security of supply

Bottlenecks connected with infrastructure, primarily harbour capacity and inland transportation, are commonly known. The speedy solution of these problems is extremely important. The Finnish buyers expect to find themselves very soon in a situation in which Panamax-size vessels (and even larger vessels) could haul coal from the USA on a consecutive voyage basis without the risk of demurrage. The idea of the USA as a reliable supplier of coal is also necessary due to other kinds of disturbances in deliveries like frequency and effects of strikes and export limitations, which have been experienced in the past.

Competitiveness

The success of the USA in the international coal market essentially depends on its price competitiveness. In this respect the development has lately been apprehensive, e.g. as far as railroad freights are concerned.

It is important that conditions of free competition will be strengthened and remain in mining, transportation as well as in harbour services.

In addition, innovativeness and flexibility can contribute to the USA's coal export industry reaching success in exporting.

Quality

Coal having the following analysis fits for the use of the biggest buyers.

Analysis (gross as received)

Moisture	max 10 per cent
Calorific value	min 11500 btu/lb
Volatiles	min 25 per cent
Ash	max 15 per cent
Sulphur	max 1.5 per cent
Hardgrove	min 50
Size	0 x 2
Ash fusion (ID)	min 2300 F

The requirements put on the quality of steam coal are considerably affected by the fact that Finnish power plants have been designed for the use of mainly Polish coal.

As regards calorific value, it should be mentioned that it is most economic to transport high BTU coal from the USA to Finland. Consequently BTU's should preferably be over 12 000. The current maximum of sulphur contents is 1.5 per cent in power plant use. Emission control acts are expected to limit the sulphur contents to approx. 1 per cent in the coming few years. According to our experience the only problems that have arisen in the availability of the coal qualities meeting the above mentioned requirements are primarily related to sulphur contents, hardgrove-index and moisture (US Gulf).

In view of quality we wish to point out that the non-homogenity of the US coal is felt to be a problem among the buyers. The reason for inconstant quality is often due to the fact that coal from many mines is needed to get a single ship cargo together. This problem is probably more common when dealing with traders. It is our belief that an established operator is in a better position to get these quality problems in control.

Quality problems essentially involve sampling and analyzing. To our regret we have to state that in the analyses of US coal there have often occurred great discrepancies, which to a large extent seem to result from the non-homogenous quality which on its part leads to the difficulty in executing a statistically representative sampling.

The buyers will very probably suggest a policy in which the analysis made by the buyer will be decisive and also work as the basis for premium/penalty invoicing. This being the case, the buyers will naturally offer the sellers an opportunity of controlling the reliability of sampling and analyzing. Another alternative is the execution of sampling and analyzing by an independent laboratory, the reliability of which is as much under the buyer's as the seller's control.

Possible foreign investments

The biggest steam coal consumers in Finland, the power utilities, are interested and ready to invest in foreign coal mining business. In the first place, it could be achieved so that the Finnish companies would become shareholders in some coal mining companies in the United States. Before final decision the quality and amount of the coal would have to be checked and a preliminary feasibility study of the transportation possibilities would have to be done.

We see the Finnish participation in American coal mining as a very realistic possibility to secure a continuous and economical supply of coal to the Finnish power plants.

Senator **Warner**. Thank you very much. We will next hear from Mr. Starfelt, counselor, science and technology, Swedish Embassy.

STATEMENT OF NILS STARFELT, COUNSELOR, SCIENCE AND TECHNOLOGY, SWEDISH EMBASSY

Mr. **Starfelt**. Mr. Chairman, I would first of all like to thank you for inviting me to take part in this hearing. I would like to refer very much to some figures I have in this report and to start out by giving a background.

Senator **Warner**. We will include your report as well as all reports submitted today in their entirety in the record. For purposes of brevity and the amount of time we have remaining, to the extent you can, if you could condense your statement we would be appreciative.

Mr. **Starfelt**. Yes. The first figure shows the energy used in Sweden, and it shows that we use about a third, a third of the use is fuel for heat in buildings. Another third is fuel for industry, and then something like 20 percent fuel for transport, and the other 20 percent is electricity, and the next figure shows the end use supply, and that gives a picture of the bad situation we are all in.

Something like 70 percent is imported oil, and most of the rest is electricity. As to the electricity, in the year July 1980 to June 1981, the electricity production was 58 percent hydroelectric, 39 percent nuclear, and only 3 percent fuel. There is virtually no oil produced in Sweden, and there is very little hope that this situation will change.

From these figures, it is quite obvious that we are heavily dependent upon imported oil. The oil is used to a great extent for the heating of buildings and for industry. The transport sector is less dominating than in the United States, and we use very little fuel for electricity production, and I think I should say a few words about the nuclear situation in Sweden.

In the aftermath of the TMI accident, a referendum on nuclear power was held in Sweden. The outcome was that we should complete and use the 12 reactors which were in operation, under construction, or in an advanced state of planning. Today we have nine reactors in use. Nuclear power should, according to the referendum, be replaced by other energy sources as soon as possible, which the Parliament has interpreted as some time between the years of 2000 and 2020.

Thus today we have a great need of replacing oil for heating of buildings and for use in industry, but not for electricity production.

The next figure shows how the use of coal has developed during the last 50 years. In 1977, only 0.4 million tons was steam coal, and the other 2.3 million tons was metallurgical coal. This means that since 1955 we have in fact lost the traditional technology of using steam coal. Our Government is now supporting the reintroduction of coal, and we are counting on getting back to the 1950 level; that is, 6 million tons around 1990.

The next figure shows some scenarios. The first one is for 1990. The second one is for some time early next century. The third one is for the case if we need coal for electricity production, so this shows that we are aiming for something like around 10, 15 million tons of coal.

Now there are two main problems connected with increased use of coal in Sweden. The first one, I think the most important, is the environmental impact, and the second one is the supply of coal.

As to the environment, acidification is the main concern in our country. We have 12,000 dead lakes in Sweden, and the number is growing. We know that it is not a simple problem. One source of this acidification is, of course, that Swedish bedrock is mainly solid granite and we have very little limestone to counteract acidification.

Another factor is that 82 percent of the 480,000 tons of sulfur which are deposited on Sweden per year comes from abroad, primarily from Western Europe, and figure 5 illustrates the situation; that is, that almost all the acidification comes from sulfur oxide produced somewhere else. This means that if we would construct even a very large powerplant, say four times 600 megawatt electricity, burning coal of 0.8 percent sulfur content, it wouldn't increase the deposition of sulfur by more than a factor of two. That is over a very small area close to the plant, and much less at longer distances.

In spite of these obvious difficulties to do something, Sweden is trying to improve the situation. We are making an optimistic approach and are trying to find means to improve the situation, and the philosophy is that when we reintroduce coal we will try to do that in such a way that we improve the environment, not just avoid the deterioration of the environment. At present, we have a limit of 1 percent sulfur in the oil used in southern Sweden. This rule will be extended to cover the main part of the country in 1984. The present policy for coal-burning plants is to permit emission of not more than 2,100 tons of sulfur per year from large plants, and restrict more uses to coal containing less than 0.8 percent sulfur.

We have two recent cases where the cities of Sodertalje and Vasteras have been granted permission to use coal-fired district heating plants, and the Government has required that the plants shall use flue gas scrubbers.

At present, the Government is studying the possibility of requiring a maximum of 0.6 percent sulfur in the coal imports to Sweden, and this would reduce the interest in exporting coal from the Eastern United States to Sweden. Furthermore, reduction in the maximum emission of sulfur from 2,100 tons per year to 1,600 is planned. These new rules would be valid from the end of the 1980's, and the aim would be to reduce the emissions even further during the 1990's.

I will end my statement by adding one further problem. For some reason, Swedes tend to overemphasize the problems with the United States as a coal exporter. The port problem, mine strikes, and your own energy concerns are mentioned in this context. What we need is, of course, reliable information on new environmentally acceptable technologies and on the reliable long-term export policies of the United States.

Thank you.

[The prepared statement of Mr. Starfelt follows:]

11-03-81

Use of Coal in Sweden

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Sweden is a small country situated very far north of the equator. The population is 8 million and the latitude of Stockholm, the capital, is the same as southern Alaska. Thus we need a lot of energy to keep ourselves warm not only in the middle of the winter.

The energy use for 1979 is shown in Fig 1.
Fig 2 shows the energy supply the same year.

In the year July 1980 - June 1981, the electricity production was:

Hydro	58%
Nuclear	39%
Fuels	3%

Virtually no oil or coal is produced in Sweden and there is very little hope that this situation will change.

From what I have said so far it is obvious that:

1. We are very heavily dependent on imported oil.
2. The oil is used to a great extent for the heating of buildings and for industry.
3. The transport sector is less dominating than in USA.
4. We use very little fuel for electricity production.

In the aftermath of the TMI-accident a referendum on nuclear power was held in Sweden. The outcome was that we should complete and use the 12 reactors which were in operation, under construction or in an advanced stage of planning. We have now 9 reactors in use. Nuclear power should be replaced by other energy sources as soon as possible, which should be interpreted to be sometime between the years 2000 and 2020.

Thus we have a great need of replacing oil for the heating of buildings and for use in industry but not for electricity production.

Fig 3 shows how the use of coal has developed during the last 50 years. In 1977, 0,4 million tons were steam coal and 2,3 million was metallurgical coal. Since 1955 we have in fact lost the tradition and the technology of using steam coal.

The government is now supporting the re-introduction of coal and we are counting on getting back to the 1950 level i.e. 6M tons around 1990.

Some scenarios are shown in Fig 4. Number I refers to the year 1990, number II to some time in the beginning of next century and number III to the same point in time but with a substantial electricity generation from coal.

There are two main problems connected with increased use of coal in Sweden: 1) The environmental impact
2) The supply of coal.

Acidification is the main concern. We have 12 000 dead lakes in Sweden and the number is growing. We know that it is not a simple problem. Swedish bed rock is mainly solid granite with very little lime stone to counteract the acidification. Changing farming practices has an influence on the acidity of soil and water. Furthermore, 82% of the 480 000 tons of sulphur deposited on Sweden comes from abroad, mainly from Western Europe. Fig 5 illustrates the situation. Even a very large power plant, eg 4x600 MW el, burning coal of 0,8% sulphur content would not increase the deposition of sulphur by more than a factor of two over a small area close to the plant and much less at larger distances.

In spite of these obvious difficulties we are making an optimistic approach trying hard to find means of improving the situation. In fact, when we re-introduce coal we will try to do that in such a way that we improve the environment, not just avoid deterioration.

At present we have a limit of 1,0% sulphur in the oil used in southern Sweden. The rule will be extended to cover the main part of the country in 1984. This rule is based on a law passed by parliament in 1976. According to this law the government has to set the detailed rules without asking parliament. However, the re-introduction of coal is considered by the government to be of such importance that it will consult parliament as to the new rules.

The present policy is to permit an emission of not more than 2100 ton of sulphur per year from larger plants and restrict small users to coal containing less than 0,8% sulphur. In recent cases where the cities of Södertälje and Västerås have been granted permission to build coal-fired district heating plants the government has required that the plants shall use flue gas scrubbers.

At present the government is studying the possibility of requiring a maximum of 0,6% sulphur in the coal imported to Sweden. This would of course reduce the interest in exporting coal from eastern US to Sweden. Furthermore, a reduction of the maximum emission of sulphur from 2100 ton per year to 1600 is planned. These new rules would be valid from the end of the 1980:s and the aim would be to reduce the emissions further during the 1990:s.

I will end by mentioning one further problem. For some reason Swedes tend to over-emphasize the problems with USA as a coal exporter. The port problem, the mine strikes and your own energy concerns are mentioned in this context.

What we need is of course information about new environmentally acceptable technologies and about the reliable long-term export policies of the US. The risk is that in the attempt to improve the environment, rules will be set which make it very difficult to reduce the Swedish heavy dependence on imported oil by converting to coal.

Fig. 1
Energy use in 1979
408 TWh

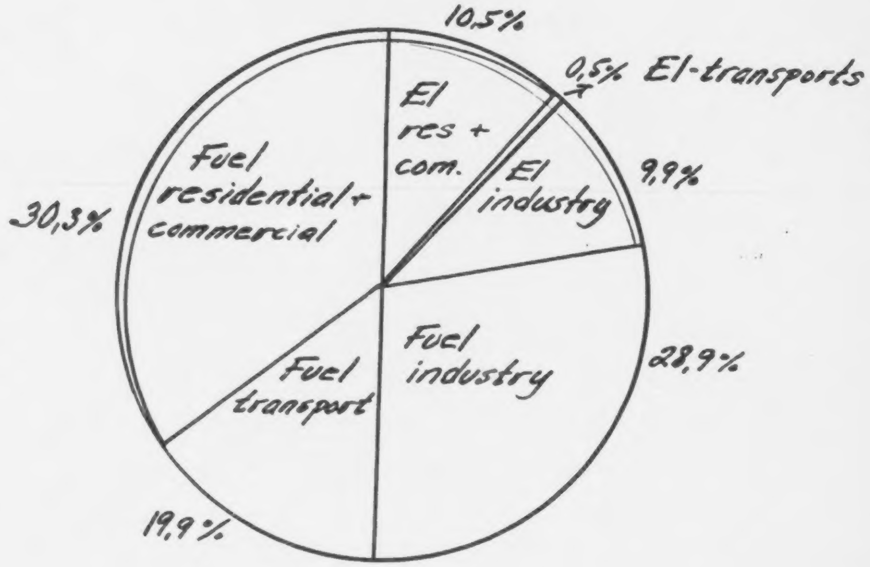


Fig. 2
Energy supply in 1979
437 TWh

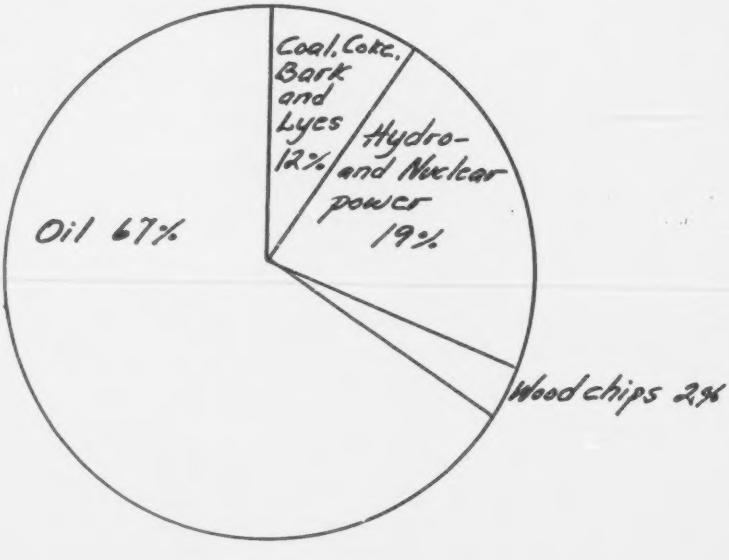
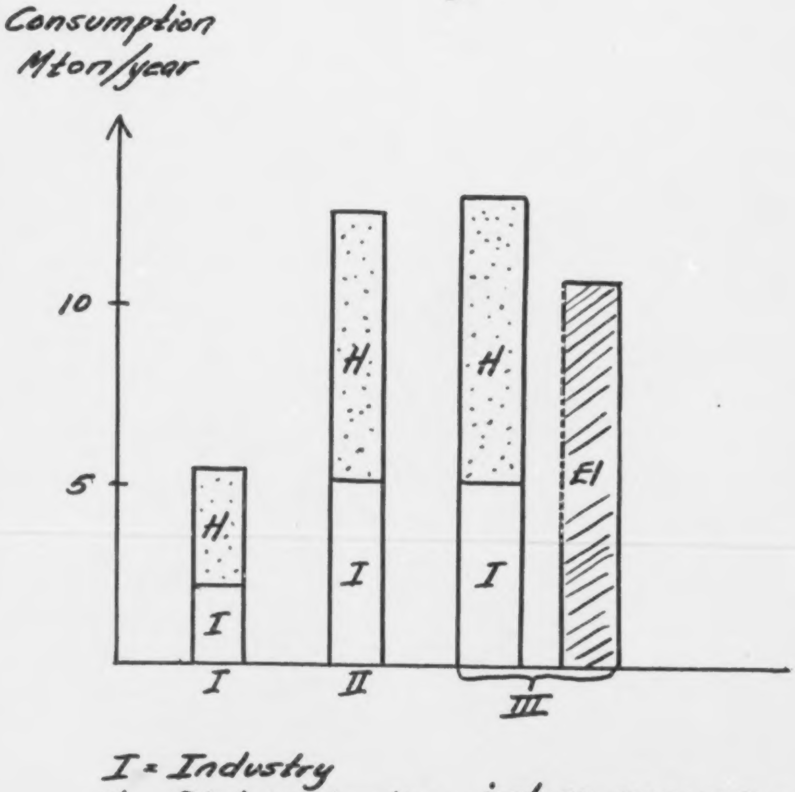


Fig. 3

Coal use

Year	ton·10^6
1930	7
1950	6
1970	2,9
1979	2,7

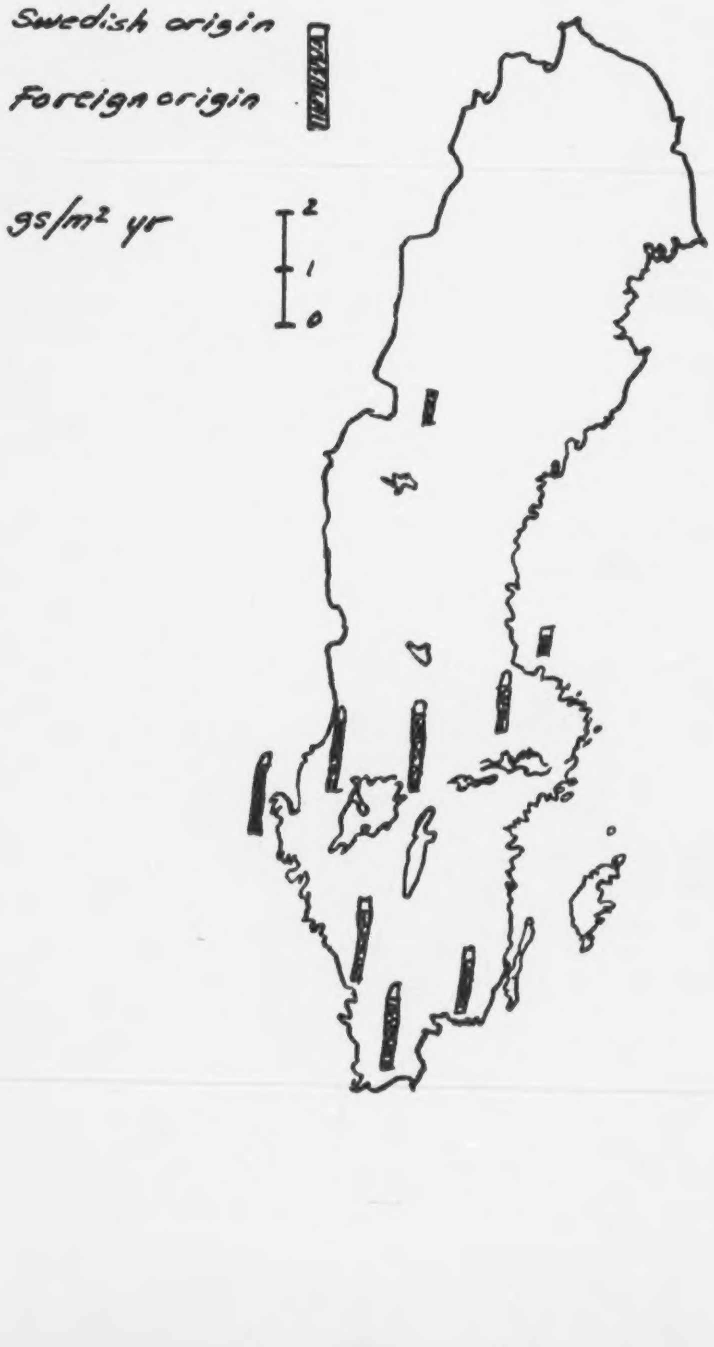
Fig. 4



I = Industry
H = District heating incl. co-generation
El = Electric power plants

Fig. 5

Deposition of sulphur 1978



Senator WARNER. We are trying to examine the environment problems here in the United States also.

Thank you very much for your helpful statement. Mr. Sachmann, vice president and director, ELSAM, Fredericia—good morning, sir.

Mr. SACHMANN. Good morning.

Senator WARNER. We will put your statement in the record in its entirety. You may proceed as you see fit.

STATEMENT OF POUL SACHMANN, VICE PRESIDENT AND DIRECTOR, ELSAM

Mr. SACHMANN. Thank you, Mr. Chairman. I am honored to be here today to present some Danish views on America's role in the coal export market.

In Denmark, two associations of power companies, ELFKRAFT and ELSAM, account for more than 90 percent of the total Danish coal imports. The two companies have been changed over the last 8 years from 20 to 85 percent coal versus oil, which has made Denmark the second biggest international importer of steam coal. With this background, this presentation will be applied to Denmark as a whole rather than to a single customer.

The background paper, "Denmark Coal Import Prospects and Port Developments," begins with a description of the Danish electrical system which I won't pass on. The total Danish coal imports have increased from 7½ million tons in 1979 to about 10 million tons in 1980, and they are expected to rise to about 14 million tons in 1985 and, and 16 to 19 million in the 1990's, all of it being steam coal.

The imports from the United States was 1.3 million tons, and this year we expect to raise well above 3 million tons. By that, the United States will become the largest supplier to Denmark. The last part of the CIF, which is the delivered coal prices, transportation costs, and the seabound transportation, accounts for 20 to 25 percent of the freight on board price of the United States, even with the present low sea freight market, the vessel costs are mainly dependent upon fuel costs, that is, oil, and crew wages, and these operations costs are decreased for the large vessels. The only way to reduce transportation cost is to use large vessels.

Denmark and other coal importing countries have concentrated extensively to accommodate vessels in the 100,000 tons size, and are prepared to make further expansions.

In Denmark, two ports are today able to receive fully laden 100,000 tons, and in 1983 the same two ports will be able to receive fully loaded 170,000 tonners. Among the major exporting countries, the United States is the only country not able to load hundred thousand tons plus deadweight fully laden. We take South Africa, that is 170. Canada will in 1983 become 250,000. Australia is today approximately 170 in one port, and Colombia, from 85, Colombia, South America from 85 to 150 thousand tonners.

ELSAM is building two 132,000 ton deadweight vessels for trade in the Atlantic, and considering long-term contracts with coal exporters it is, of course, an important factor that these vessels will be used to their optimum.

I know it is unusual that a utility group invest in ships. Therefore, we are naturally interested in long-term contracts and covering about three-fourths of our needs on long-term contracts from whatever country it might be. We are calculating the freight difference for round voyage from the U.S. east coast to Denmark at different drafts, and this paper here, it is taken as a basis of 65 feet. I think I would rather do it on the basis of 45 which is the existing figure. If we take the 45 and look upon 55 to compare it with, that is 150,000 to 170,000 tonners fully laden, then there will be a saving as we calculate it on a cost basis, not on a low or high freight market, on the cost of new building there will be a saving of about $2.8 per ton, and if it should be possible to have 65 feet, then the saving will be about $4 per ton.

With these differences in mind, it is obvious that transportation costs would be substantially reduced if the United States ports were dredged in excess of the present maximum of 45 feet. In August 1981, more than 20 vessels in the plus 100,000 tons deadweight range left Hampton Roads partially laden. As an example, we take ships into our system which are somewhat above the 100,000 knowing that we can't do fully laden, but even with a part we can run those ships cheaper than we can run a normal Panamax, and we expect with our new ships coming in, the first one coming October of next year, that if we can't have a full load, for example, from South Africa, then it even pays for us to use 132, part cargo of perhaps 95,000 ton from the east coast and, therefore, you can see that filling it up doesn't cost anything. You really get the remaining cargo with free transportation.

The question can then be put who will earn the transportation cost saved? It is our feeling that the U.S. coal producers have all similar production costs as many of the coal exporters throughout the world. From our point of view, it is the CIF, the delivered price to Denmark, that determines our interest, and with less transportation cost, the U.S. producers may obtain higher FOB prices and consequently higher profits.

Furthermore, our delivered price may be reduced which may mean a benefit to the U.S. coal producers. I was giving a speech here in Washington in May of this year, and the question was raised to me who shall pay for such, and I think I was one of the few who said we are willing to take part in that. We made a small calculation showing that the cost could be in the order of perhaps $1 per ton being delivered if more than Denmark, for example, also would take advantage of the big ships, and $1 on a total savings of perhaps in the neighborhood of $3 it pays for both parties, and that will make the United States more competitive to Europe.

Senator WARNER. We call that a user fee.

Mr. SACHMANN. Yes. We realize that dredging of all major coal ports in the United States will not be profitable due to the limited volume of coal exports. Therefore, it is our recommendation that dredging to at least 55 feet would be better if carried out at a couple of selected locations instead of carrying out a costly and insufficient dredging program at a great number of sites. I can tell you that during the last year I have been invited to some different openings of ports or dredging projects, and if you try to dredge all those, I am sure that the cost will be far above the cost if you instead concentrate, for example, at two locations, and then make them really attractive to those European companies that contain drafts for the big ships.

We are sure that the coal producers in the United States will then be able to establish well-equipped coal terminals with sufficient storage areas at these locations and thus enable the U.S. coal export to expand substantially in the coming years. The long-run failure to make the necessary decisions on dredging in the U.S. coal ports will be a great obstruction to the coal export from this country.

Regarding the U.S. role as a supplier to Europe, I agree with the statements given by the first witness, Mr. Allen. The Coal Industry Advisory Board of the International Energy Agency, we consider this board as being of vital importance to the coal industry worldwide.

Mr. Chairman, as I expect a question from you on self-ignition, I can tell you that a week ago we had to revert a vessel to New Orleans after order from the captain. We until now have found no experts on this subject. We continue from Washington here to the south of the United States to discuss the subject. We have had Illinois Basin coal for quite a long period without problems, and consider the problem coming up partly because of the sulfur steam coal market and the soft freight market.

Thank you.

[The prepared statement of Mr. Sachmann follows:]

MINISTRY OF ENERGY

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November 7, 1980
(revised January 1981)
j.nr. 4110.10 (PW/lkl1bb.3)

Denmark's consumption and import of coal.

Contents:

1. Consumption in 1979
2. Imports 1972-1979
3. Information concerning the individual importers
4. Future imports

Map of Denmark and surrounding countries

Map of Denmark showing coal-harbours; list of public and privately owned coal-harbours

List of addresses of coal-importers

1. Consumption in 1979

Table 1 shows the gross energy consumption in Denmark in 1979 (preliminary figures) distributed according to sectors and specifying the consumption of coal.

Table 1. Danmark´s gross energy consumption in 1979 (preliminary figures). Million gica-calories.

	total	coal[1]
power plants	58.5[2]	36.9
industry	40.0	5.9
gasworks	1.5	0.2[3]
district heating	13.3	0.01
other	81.7[4]	-
all sectors	195.0	43.0

[1] including a small amount of coke

[2] of which: fuel oil and other oil: 18.9 and net-import of electricity: 2.7

[3] after deduction for export af coke

[4] heating: 45.4, transport: 34.3, waste-burning plants: 2.0

The main consumption of coal takes place in the power plants, which produce electricity and deliver energy to local district heating systems. Of the power plants´ total fuel consumption in 1979, coal accounted for 66 per cent and oil for 34 per cent (on a calorific basis).

The consumption of coal consists of steamcoal with the exception of the gasworks (in fact only one gaswork is coal-based), where gas-coal is used.

2. Denmark´s import of coal 1972-1979.

The consumption of coal is based on imports, since Denmark does not possess commercial coal deposits. (Greenland, which is part of Denmark, does possess coal deposits, but these are not commercially utilised at present).

Table 2 shows Danish imports of coal 1972-1979.

Table 2. Denmarks imports of coal 1972-1979. Million metric tonnes.

1972	2.2	1976	4.2
1973	3.0	1977	5.6
1974	3.6	1978	6.1
1975	4.1	1979	7.5
		1980	10 (est.)

The increase in Denmark´s import of coal shown in the table is mainly due to the switch from oil to coal made by the power plants following the oil crisis in 1973/74. In 1972 coal accounted for 20 per cent of the fuel consumption of the power plants. In 1979 the coal-share was 66 per cent as stated above; the coal-share in 1980 is estimated to around 80 per cent.

Table 3 (next page) shows the geographical distribution of Denmark's import of coal 1976-1979.

Table 3. Geographical distribution of Denmark´s import of coal 1976-1979
Thousand metric tonnes.

	1976	1977	1978	1979
United Kingdom	30	92	145	234
F.R. of Germany	1	897	928	601
Netherlands (transit)	-	-	-	11
(EEC-countries, total)	(31)	(989)	(1,073)	(846)
other W-European countries[1]	4	20	8	16
Poland	3,168	2,593	3,078	2,982
USSR	635	921	528	472
other E-European countries[2]	9	7	19	7
European countries, total	3,847	4,530	4,706	4,323
Republic of Southafrica	21	384	868	2,290
USA	31	90	2	178
Canada	227	431	307	133
Australia	-	49	177	609
others[3]	51	83	50	19
overseas countries, total	330	1,037	1,404	3,229
TOTAL IMPORTS	4,177	5,566	6,110	7,552

[1] Sweden, Portugal
[2] Czechoslovakia, German Democratic Republic
[3] Venezuela, India, China

Apart from a small amount of gascoal the Danish import of coal consists of steamcoal. Denmark is the world´s second largest importer of overseas steamcoal (France being number one; the Canadian import of steamcoal from the USA exceeds the total Danish import, but is, however, not overseas import). The importation from overseas countries is mainly done by the power companies, whereas other importers mainly get their supplies from European sources (75 per cent coming from Poland).

The importation of coal is almost exclusively undertaken by the end-users themselves. Table 4 shows the imports in 1979 distributed according to importers.

Table 4. Danmark´s import of coal 1979 distributed according to importers.

	thousand metrics tonnes	per cent
power companies	6,552	88
industrial companies	735	10
commercial importers	69	1
gas-work	93	1
total	7,449	100

(The difference between the figures in this table and the figures in table 3 is due to differences with respect to the time of recording certain loads)

3. Information concerning the individual importers/group of importers

In this section the individual importers/groups of importers are enumerated. Coal is imported into Denmark by sea; the capacity of the coal-harbours is indicated as measured by the size of vessels (dwt) which can be accomodated fully-loaded.

3.1 The power companies.

The individual power companies are organised in a number of different ways but basically they are owned by groups of consumers and/or municipalities; some are joint-stock companies. Most of the individual power companies are joined together in associations.

Elsam is an association af six regional power companies in Jutland and the regional power company on Funen . The association is responsible for the purchasing and distribution of fuel to the power plants. In 1979 Elsam imported 3.4 million tonnes of coal.

Elkraft is an association of three regional power companies on Zealand. With effect from January 1981 the association will be responsible for the purchasing and distribution of fuel to the power plants. In 1979 the total imports of coal to the power companies, being associated in Elkraft, amounted to 2.8 million tonnes.

Elsam and the Elkraft group of companies have a widespread net of contacts to coal producers and -exporters all over the world. The companies operate a number of own coal-harbours. The largest harbour in the Elsam area is the harbour at Ensted which at present can accomodate vessels upto 100,000 dwt; there are plans to enlarge the harbour to accomodate 170,000 dwt vessels. The largest harbour in the Elkraft area is the harbour at Stigsnæs which can accomodate vessels upto 110,000 dwt (enlargement is possible).

Østkraft supplies electricity to the island of Bornholm. The company imports coal from Poland only; the present consumption of coal is in the magnitude of 4,000 tonnes p.a. (In 1981 it is, however, envisaged to import around 12,000 tonnes in order to build up stocks). The coal is landed at the municipal harbour of Rønne, which can accomodate vessels upto 4,000 dwt. The company has expressed an interest in diversifying imports of coal.

The power companies/group of companies mentioned above together account for 99 per cent of the Danish electricity production, which is supplied to consumers. The balance is produced by minor public works.

Randers kommunale Værker (Randers Municipal Works) is one of the minor public works which supply electricity to consumers. The main activity of the company is the supply of district heating to the township of Randers. The production is coal-based and the company imports coal entirely from Poland. The present consumption of coal is in the magnitude of 150,000 tonnes p.a. The coal is landed at the municipal harbour of Randers, which can accomodate vessels upto 4,000 dwt. The company has expressed an interest in diversifying its imports of coal.

3.2 Industrial companies

Below are listed all the industrial companies, which have an own import of coal. All the companies have expressed an interest in diversifying their imports.

Aalborg Portland produces cement. The company imported 527,000 tonnes of coal in 1979, the main part coming from Poland and the rest from USSR and the United Kingdom. The coal is landed at the company's own harbour at Rørdal near the city of Aalborg. The harbour can accomodate vessels upto 18,000 dwt.

De Forenede Papirfabrikker (The Danish Paper Mills) is a group of paper mills. The group imported 109,000 tonnes of coal in 1979 from Poland, the USSR and the United Kingdom. The Danish Paper Mills use their own pier at the Maglemølle Paperfactory, adjacent to the public harbour at Næstved (capacity: 2,400 dwt), and the public harbour at Odense (capacity: 4,000 dwt at the site of the coalyard of the local papermill). The Danish Paper Mills further import coal to a subsidiary company; the coal is landed at the public harbour of Rødbyhavn (capacity: 1,000 dwt).

De Danske Sukkerfabrikker (The Danish Sugar Factories) is a group of sugar factories. The group imported around 67,000 tonnes of coal in 1979 from Poland, Sweden and the F.R. of Germany. The sugar factories use the public harbours at Assens (capacity: 3,000 dwt), Stege (600 dwt), Sakskøbing (900 dwt), Holbæk (3,000 dwt) and Nakskov (2,000 dwt).

Sukkerfabrikken Nykøbing (Nykøbing sugarfactory) imported around 5,000 tonnes of coal in 1979. The coal is landed at the public harbour of Nykøbing. The harbour can accomodate vessels up to 4,000 dwt. With the present un-loading equipment for coal the maximum size of ships, which can be received, is 2,000 dwt.

Faxe Kalk (Faxe Limeworks) imported 11,000 tonnes of coal in 1979 from Poland and Norway and 2,000 tonnes via Rotterdam . The coal is landed at the limeworks' own harbour at Faxe Ladeplads, which can accomodate vessels upto 1,100 dwt.

De Danske Spritfabrikker (The Danish Distilleries) imported coal in 1978, but not in 1979. The company plans to resume the importation of coal in 1981. The planned import is around 12,000 tonnes p.a. and will be landed at the public harbour of Aalborg which can accomodate vessels up to 18,000 dwt.

3.3 The commercial importers imported 69,000 tonnes of coal in 1979 from Poland, Czechoslovakia and the German Democratic Republic. The commercial importers re-sell coal to , among others, tile-works, concrete-works, households, farms, market-gardens and district heating plants.

The commercial importers can be reached by contacting Grosserer-societetet (The Chamber of Commerce). The Chamber issues each month a publication "Import-orientering" which contains information about offers, which have been received, provided such offers contain sufficient details.

3.4 Strandvejsgasværket (The Strandvejs-gaswork) has imported gascoal from the USSR, the USA and from the United Kingdom through the public harbour owned by the Tuborg Breweries. The gaswork is expected to close down as a coal-based gaswork in 1984.

4. Future imports of coal to Denmark

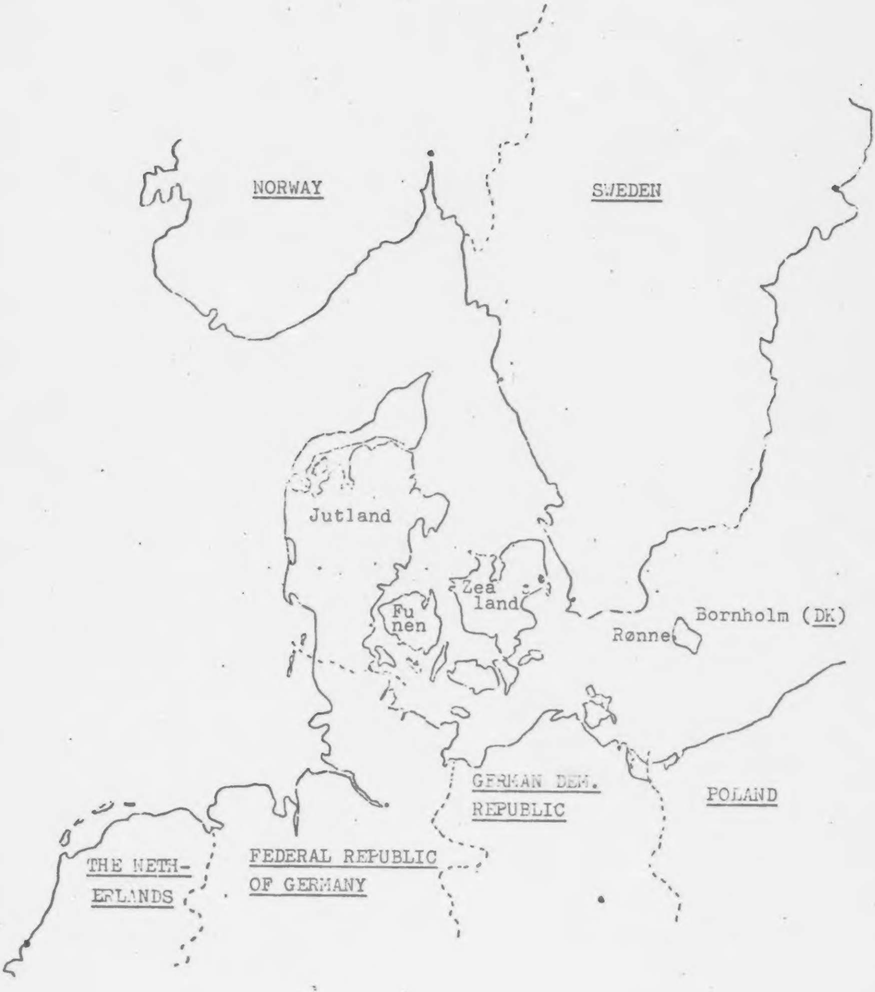
The Ministry of Energy is in the process of working out projections for the future electricity consumption/production, which is the most decisive factor determining the future coal consumption and hence -imports. It is not yet (January 1981) established what the growth rate in the electricity comsumption will be. Assuming an annual growth rate of 3 percent in the electricity consumption the figures for total coal imports are at present estimated to be as shown in table 5. The figures include imports for all purposes, i.e. not only for the use of power companies.

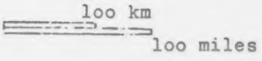
Table 5. Estimated coal imports for all purposes 1985-2000 assuming an annual growth rate of electricity consumption of 3 per cent.

1985	14	million	metric	tonnes
1990	17	"	"	"
1995	20	"	"	"
2000	22	"	"	"

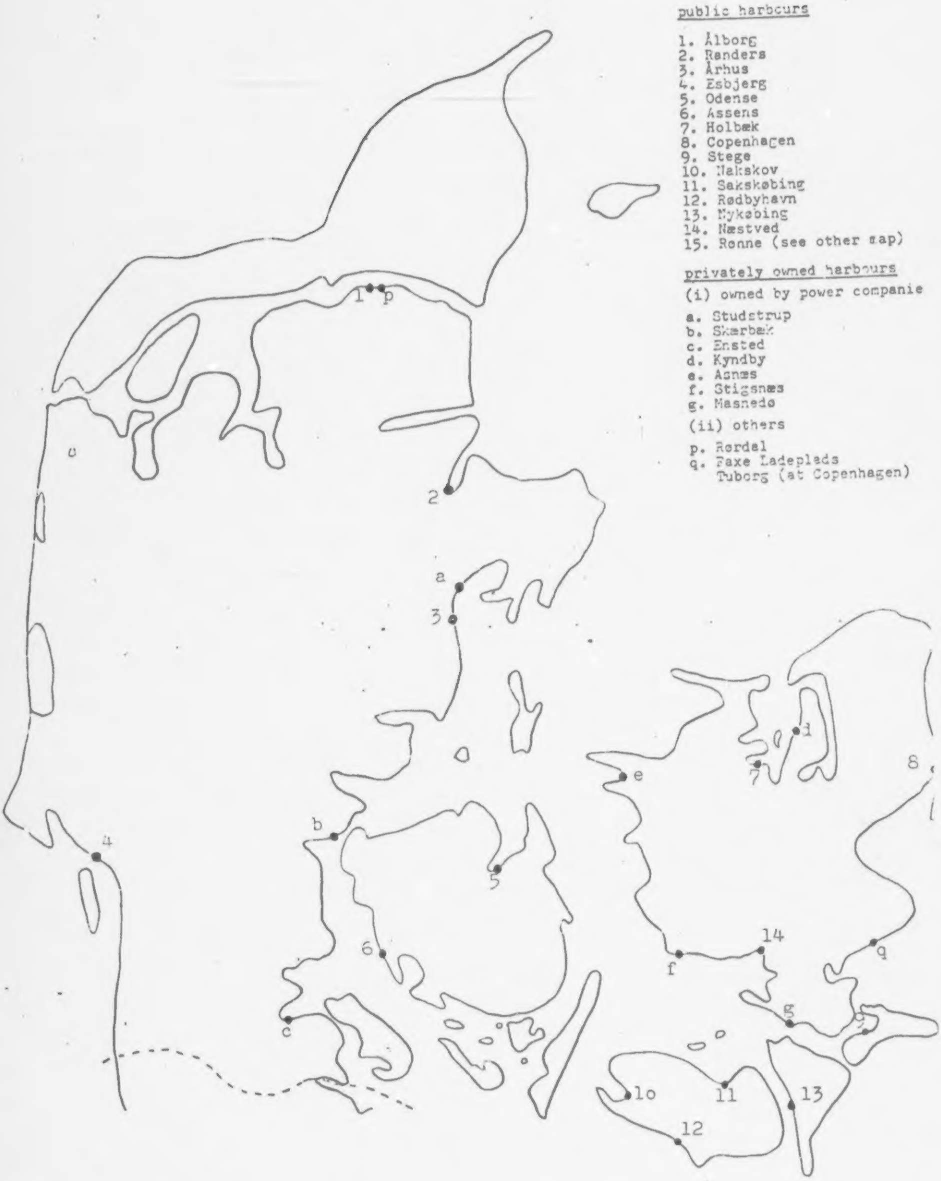
These preliminary figures are only to be taken as rough estimates. The figures are based on the further assumption, that electricity production will continue to be based on coal and oil as primary energy. In the event that nuclear power is introduced in Denmark the annual coal consumption will be reduced by 2.5 million tonnes per nuclear power unit (1,300 MWe) which is taken into use.

Map of Denmark and surrounding countries





Map of Denmark, showing coal-harbours



Addresses of Danish coal importers

Power companies:

Elsam
DK-7000 Fredericia

Elkraft
Parallelvej 19
DK- 2800 Lyngby

Østkraft Ans
P.O. Box 9
DK-3700 Rønne

Randers kommunale Værker
att. J. Rosenstand, Director
Mariagervej 6
DK-8900 Randers

Industrial companies:

Aalborg Portland
att. Fritz Møller, Purchasing Manager
P.O.Box 165
DK-9100 Aalborg

A/S De Forenede Papirfabrikker
att. H. Gravesen, Purchasing Manager
St. Strandstræde 18
DK-1255 Copenhagen K

A/S De Danske Sukkerfabrikker
att. A. Østergaard, Purchasing Manager
Langebrogade 5
DK-1411 Copenhagen K

cont'd

Sukkerfabrikken Nykøbing
att. A. Jensen, Purchasing Manager
DK-4800 Nykøbing F.

Faxe Kalk
att. R. Larsen, Purchasing Manager
P.O.Box 2183
DK-1017 Copenhagen K

A/S De Danske Spritfabrikker
att. E. Thygesen, Purchasing Manager
Raffinaderivej 10
DK-2300 Copenhagen S

Strandvejsgasværket A/S
Strandvejen 72
DK 2900 Hellerup

For contact with commercial importers, write:

Grosserer-societetet
Import promotion office
Børsen
DK-1217 Copenhagen K.

P. Stehmann
Vice-President
ELSAM
Denmark

5th November, 1981

SUMMARY STATEMENT

Hearing on "America's Role in the World Coal Export Market"

10th November, 1981

In Denmark two associations of power companies, ELKRAFT and ELSAM, accounts for more than 90% of the total Danish coal import.

On this background this presentation can be applied to Denmark as a whole rather than to a single costumer.

The total Danish coal imports have increased from 7.5 mio. tonnes in 1979 to 9.9 mio. tonnes in 1980 and are expected to reach about 14 mio. tonnes in 1985 and 16-19 mio. tonnes in 1990, all being steam coal.

In 1980 the import from the U.S.A. were 1.3 mio. tonnes and this year we expect to reach well above 3 mio. tonnes.

A large part of the c.i.f. (delivered) coal price is transportation costs, and the seabound transportation accounts for 20-25% of the f.o.b.-price in the U.S.A. even with the present low seafreight market.

The vessel's costs are mainly dependent on fuel costs (oil) and crew wages, and as these operation costs are decreasing on a tonne basis with large vessels, the only way to reduce transportation costs is to use large vessels.

Denmark and other coal importing countries have consequently extended their ports to accommodate vessels in the 100.000+ dwt sizes and are prepared for further extensions. In Denmark two ports are today able to receive full-laden 120,000 ton vessels and from 1983 these two ports will be able to receive full-laden 170,000 ton vessels.

Among major exporting countries overseas, the U.S.A. is the only country not able to load 100,000+ dwt vessels fully (South Africa 170,000 dwt, Canada 250,000 dwt (1983), Australia approx. 170,000 dwt and Colombia 150,000 dwt (1985)).

ELSAM has ordered building of two 132,000 dwt vessels for trade in the Atlantic, and considering long term contracts with coal exporters it is, of course, an important factor that these vessels will be used to their optimum.

We have calculated the freight difference for a round voyage U.S. East Coast/Denmark at different drafts to be as follows,

65 feet : 0 $/t (basis)
55 - : +1.2 - (extra)
50 - : +2.3 - (extra)
45 - : +4.0 - (extra)

With these differences in mind it is obvious that transportation costs would be substantially reduced if the U.S. ports were dredged in excess of the present maximum of 45 feet. (In august 1981 more than 20 vessels in the 100,000+ dwt range left Hampton Roads partially laden).

The question can then be put, who will earn the transportation costs saved. It is our feeling that the U.S. coal producers have almost similar production costs as major coal exporters throughout the world.

From our point of view, it is the c.i.f. Denmark price, that determines our interest and with less transportation costs the U.S. producers may obtain higher f.o.b. prices and consequently higher profits. Furthermore, our c.i.f. price may be reduced which may mean a benefit to the U.S. coal.

We realize that a dredging of all major coal ports in the U.S.A. will not be profitable due to the limited volume of coal exports. Therefore, it is our recommendation that appropriate dredging to at least 55 feet (deeper would be even better) is carried out at a couple of selected locations instead of carrying out a costly and insufficient dredging programme at a great number of sites.

We are sure that the coal producers in the U.S.A. will then be able to establish well equipped coal terminals with sufficient storage areas at these locations and thus enable the U.S. coal export to expand substantially in the coming years. In the long run failure to make the necessary decisions on dredging the U.S. coal ports will be a great obstruction to the coal export from this country.

ELSAM
810611

DENMARK - COAL IMPORT PROSPECTS AND PORT DEVELOPMENTS

Danish Electrical System and Interconnections to Other Countries

The Danish electrical system has today a capacity of approx. 7000 MW of which about 4500 MW are coal fired units.

As some of the old units, built in the 50'ies, have a high specific consumption they are temporarily closed down and it is intended only to use them in emergency cases.

At the end of the sixties purely oilfired units were built because of the steady decreasing oil price. But fortunately most of this capacity was prepared for coal firing, and in 1979/80 these units were converted to coal firing.

The future expansions are of course dependent on the increase in electricity consumption but before 1985 another 1000 MW coal fired unit will be established, either through newbuildings or conversions.

To improve the efficiency of the electricity production, Denmark has today several large cities included in a combined electrical and district-heating production. Compared to pure electricity production the heating production is now increasing the efficiency of the fuel from 35% to 45% for the whole system.

In future we foresee an increasing use of backpressure turbines that have a fuel efficiency of about 85%.

The first of these units will be Herning and Randers of 85 MW and 45 MW respectively.

In 1995 we expect that backpressure and combined condensing cycle with reheat production will cover about 35% of the Danish heating demand.

Denmark has no nuclear or hydro electricity production. Nuclear power might be introduced, but hydro electrical power is not economic due to our lack of sufficient waterflow. Norway and Sweden, however, have a large hydro electrical production.

The Danish power utilities are associated in two pools. ELSAM which covers the western part, and ELKRAFT which covers the eastern part of Denmark. Dividing line is the Great Belt and there are no electrical interconnections between the two associations.

ELSAM is a pool of 7 power companies, owned by groups of distribution companies. These can either be municipalities or cooperatives, so actually ELSAM and the power plants are owned directly by the consumers in this area.

ELSAM which celebrated its 25 years anniversary this year. has the purpose of achieving the best possible technical and economic development and operation of the generating and transmission system in the western part of Denmark. This includes work in areas like power plant construction, fuel purchase, operation and long term planning.

The transmission system is connected with Germany by one 400 kV and two 220 kV overhead lines and with a capacity of 1000 MW.

In Ensted, about 25 km from the German border, a 600 MW unit is shared between ELSAM and Nordwestdeutsche Kraftwerke.

ELSAM is connected to the Scandinavian countries by two DC-links, one to Sweden with a capacity of 250 MW and one to Norway with a capacity of 500 MW.

Trends towards Coal in the 70'ies

1973, when the world was given a serious warning from the OPEC-countries about future drastic price increases on oil, the power utilities in Denmark were heavily dependent on oil. Only 20% of the consumption of fuel was coal, and this was only old units with low efficiency.

We realized then, Denmark being completely dependent on imported energy, that time had come to reconsider our construction policy, and immediately started the work towards diversification of the fuels, applicable in our power plants.

Constraints to higher Coal Consumption

Experience from recent years' conversions and newbuildings of coal fired units has made it clear that it has been economically profitable and technical without major difficulties.

In future three main subjects might prevent further development of Denmark's coal utilization.

First of all, we have experienced in the past that the Danish government has assessed heavy taxes on electricity consumption in order to make this grow at a slower rate. We do not know whether this policy is going to continue, but a plan for the overall energy policy is expected late this year from the government.

The other possible constraint is the uncertainty whether nuclear power will be introduced. There will be a referendum on this subject probably in about 2 years from now, but even with an acceptance from the population the first nuclear power plant can not be ready until mid 90'ies.

Environmental restrictions on coal firing are at present not delaying newbuilding very much, but new restrictions will mean higher investments when building new plants.

Today, we have regulations on particulate pollution and air-quality for SO_2 content.

With respect to sulphur we have no restrictions on coal today, but on oil the limitation is 2,5%. The power companies therefore keep this limit also on coal, and with respect to coal's lower calorific value we avoid using coal with sulphur content higher than 1,5 - 1,6%.
We do not expect that these regulations will be tightened in the near future as Denmark is still considered a low-pollution area.

Disposal of the fly ash has become more difficult with the increasing volumes due to expanded coal use, and we have therefore formed a company with the purpose of seeking alternative solutions to the disposal problems. The results till now are successful and include use of fly ash as rawmaterial in road construction, cement production and other related areas.

Central Import Port

The increase in the coal consumption makes, of course, heavy demand on the Danish infrastructure for coal. Fortunately, all our power plants are situated on the coast line and are therefore easy to supply by vessels. The waterdepth near the coast exceeds 20 metres several places, and further extensions of ports are therefore relatively easy to carry out, without too great expenses for dredging.

However, the import from overseas is only possible to large ports, and today Denmark has only two ports (Ensted, Stigsnæs) capable of accommodating fully loaded 120.000 dwt vessels.

This year it has been decided to extend the Ensted facility to accommodate 170.000 dwt vessels fully loaded and even larger vessels partly loaded, as we are convinced that in the mid 80'ies bulkcarriers in the 150-170,000 dwt class will be prevailing for longer distances. Also the Stigsnæs port will be extended to same size as Ensted by 1983.

We expect that after 1990 larger vessels will be used, especially on the long distance from Western Canada, and Australia as well. The Australians must, however, first realize that if they wish to sell steam coal for the European market in the long run, they have to establish ports for much larger vessels than they are planning.

In Scandinavia there has been some discussion about establishing a "super coal port" in Denmark. This could be able to cover the whole of Scandinavia, as Maasvlakte in Rotterdam may cover the Netherlands, Belgium and the waterways to Central Europe.

ELSAM is convinced that a port, able to accommodate 250.000 dwt vessels, will be needed in the future. For the time being ELSAM is investigating two sites (Glatved and Risinge) for placing our own "super port", which most probably will be ready in the late 80'ies.

Distribution

The small vessels from Poland have traditionally supplied the small ports, being economical because of the short distance, but the growing coal import from overseas has made it necessary to take steps to ensure an effective internal distribution system from the large discharging terminal at Ensted.

ELSAM has therefore built three 7500 dwt push barges during the last years for supply of the small ports.

The capacity of the barge system exceeds 2 mio. tonnes annually, and we are now able to replace the Polish deliveries completely by using the barge system to distribute the overseas supplies.

Overseas Transportation

The fluctuations in the freight market during the last few years and the increasing trend have led to the conclusion that it would be advantageous to meet part of our total transportation needs with our own vessels.

It has therefore been decided to build two 132.000 dwt bulkcarriers at the Odense/Lindø shipyard for delivery in 82/83.
Although this investment is outside our field of work up till now, we have met much understanding by our board.
As our board is representing the consumers the ships are actually direct owned by the consumers and will only be used for transport of coal for the use of ELSAM.
The transportation capacity measured in tonnes is, of course, dependent on the distance, but as an example the capacity using both ships for the South Africa/Denmark route will reach 1.4 mill. tonnes or about 20-25% of our coal import in 1985.

We intend to use the vessels on the Atlantic traffic only i.e. South Africa, Colombia and the USA, if possible. At the longer distances we hope to see larger vessels. If the first two vessels turn out to be a success, we might build vessels in the 170.000 dwt class ourselves, perhaps coal-fired.

Energy for Denmark in the Future

The energy mix in the Danish supply system is rather traditional and 33% of the total consumption is for house heating, which consists of individual oil firing, electrical heating and district heating.

In the years to come the natural gas from the Danish part of the North Sea will make a heavily increasing part of the total energy demand for house heating, especially in densely populated areas as substitution for gasoil.

The natural gas project which is to be controlled by the Danish government via a State-owned company (DONG), includes a transmission system from the North Sea to the Continent around Esbjerg and across Jutland, Funen and Zealand to Copenhagen. Also a connection to the European gas system via Jutland/Germany is planned.

As heavy investments are needed for this project (approx. 1.2 billion US$ (1978)) and because the gas price is expected to be close to the oil price, it is now obvious that legislation to secure gas offtake will be introduced. Especially in the areas where the natural gas will have to compete with district heating from combined coal fired electricity production and therefore unprofitable for the consumer, there are already several discussions about this legislation in preparation.

Diversification is a key word, when we discuss the possibilities of increasing import of coal from different countries. As a main policy ELSAM does not want to buy more than 30% of its capacity from one country, and even less, if possible.

If Denmark and other European countries seriously must consider increasing import of coal from the Pacific countries and the U.S.A, it is absolutely necessary, that these countries invest in ports able to accomodate the largest vessels.

Senator WARNER. Thank you very much. We will move right on to the next witness. We will have two witnesses at this time from the Netherlands, Mr. van de Gevel, and Mr. van Haren. We will put your statement in its entirety in the record, and I would be appreciative if you could summarize.

STATEMENT OF DR. WIM G. M. van de GEVEL, DEPUTY DIRECTOR OF MINING AND COAL, DEPARTMENT OF ECONOMIC AFFAIRS, THE HAGUE, THE NETHERLANDS, ACCOMPANIED BY F. B. A. B. VAN HAREN, FIRST ECONOMIC SECRETARY, ROYAL NETHERLANDS EMBASSY

Dr. VAN DE GEVEL. Mr. Chairman, ladies and gentlemen, I am honored to have been given the opportunity to address this distinguished audience.

Having heard the praise of Mr. Allen on the Port of Rotterdam, I think it is time to invite you, Mr. Chairman, to come to Rotterdam and see for yourself.

Also briefly I will try to give you an impression of our energy strategies as well as our point of view with regard to world supply and related development. It may be added that the contents of my statement are shared by the Dutch Coal Importers and Users who are otherwise engaged and cannot attend this hearing.

In this context, I would like to bring to your attention the dialog with the Dutch Mission in October 1980, and the consultation between the Commission of the European community and U.S. representatives in June of this year in which the Dutch Government was also present. On those occasions, these visits were indeed about the effect of supply amount and supply development on the U.S. coal market and infrastructure.

My presence here today should be looked upon as an indication of our concern in particular with regard to the representative situation in the United States as well as the question of whether the United States will seem able to adequately solve the bottlenecks involved.

Mr. Chairman, in 10 minutes it is not possible, and I believe in the context of this meeting essential, to give you a very detailed view on the situation of the Netherlands. It is, however, important to outline why in the framework of the energy policy of the Dutch Government coal is to play a relatively significant role as a primary fuel and target which we have set ourselves that we expect to be met.

In September 1979, part one of the memorandum on policy was issued. In this memorandum, the general view is given of the expected supply and demand situation until the year 2000 of primary fuels in the Netherlands, as well as a number of objectives which in view of energy in particular are problems the world is facing.

One of the objectives is conservation measures which should and hopefully shall lead to the goals outlined, and was and is spreading energy consumption among a larger number of sources; in other words, diversification.

In part 2 of the memorandum on policy, the so-called coal memorandum, the objective of diversification has been developed as a basic policy for coal being one of the most important means of diversification. This policy is aimed at a target of at least 40 percent of public electricity requirements to be generated from coal by the turn of the century, and will involve the quantity of turning to 6 million tons of coal per annum.

In addition, we have the objective to bring a proportion of the industrial energy consumption on coal. When we reach these targets, it will involve steam coal consumption of approximately 24 to 28 million tons of coal equivalence by the year 2000. If metallurgical coal users is included in the total figures, we may expect to import a total of 29 to 33 million tons of coal.

One and a half years have passed since the white paper on coal was published, a period characterized by extremely low growth, increasing unemployment, and financial results, and increasing primary energy demand. Nevertheless, this has not changed or affected the principles of our coal policy. On the contrary, I might say the neighboring countries which are relatively high priced for electricity due to their energy structure and the power generation sector, has put our industry in a comparatively favorable competitive position. This has led to the conviction that the switch to coal even in the present economic circumstances must be regarded as one of the primary conditions for industrial recovery.

In view of the present overcapacity in the utility sector and the time needed to create more competitive conditions for industry, attention is presently focused on the possibility of an accelerated conversion of existing oil-fired power stations, aiming for a reduction of the price for electricity.

In the document, you will find a more detailed expose. Consequently, in spite of the decreased gross national product, utilities will not stagnate. The projected target of the coal memorandum will be amply met. Coal consumption will grow from 3.5 million tons in 1981 to approximately 9.4 million tons in 1990, a 284-percent increase in 9 years, thus averaging 20 percent a year, with the goal that in 2000, 40 percent of our generated electricity is to be coal-based baseline policy.

As far as coal introduction for steam raising purposes, and where industry is concerned, it is evident that competitiveness forms the main element, and incentives to switch to the application of coal. Because new techniques, judging by the progress of things, will not be timely available, and therefore cannot contribute to this cause, the Dutch Government has initiated a study to analyze and evaluate the possibility of industrial introduction of conventional coal combustion. Centralized power production is regarded as preferable.

Potential users, however, show hesitancy and reluctancy to invest when confronted and faced with staggering price increases due to demurrage charges, supply interruption, strikes and political and financial difficulties and uncertainty with regard to infrastructural improvements and developments in producing countries. For consumer countries it is essential to achieve a balance between the security of supply and the cost that is rendered, the price to be paid for a ton of coal. It should be evidence that consumers wish supply price and quality as well as adequate handling at ports. A supplier is looked upon for his reliabilility and dependability, among other things, and on his willingness and ability to timely develop the necessary structures and facilities.

It is recognized by consumers that long-term contracts are in our mutual interest and should prove beneficial to all concerned. Looking at the supply side of coal, one concludes in spite of the first results, only relatively few countries due to political or infrastructural constraints are potentially capable of substantially contributing to the coal market. The United States is considered to be the most flexible of all producers both in terms of quantity and the range of qualities they can offer. By tradition, the United States has been and hopefully will remain reliable suppliers of coal to Dutch industry.

At present, the United States supplies 40 percent of our total coal imports. This includes coke and coal. It is expected that in the years to come the U.S. coal could well have maintained its present position in the Dutch energy household. As I indicated before, consumers are seeking sources which will enable them to meet the goals set out in the field of energy and which at the same time will have the preferable influence on essential economic parameters and on the economy.

America's current role as the——

Senator WARNER. Could you speak up a little more firmly? Some persons are having difficulty hearing you. We are anxious to hear, as everyone is.

Dr. VAN DE GEVEL. As I indicated before, consumers are seeking for sources which will enable them to meet the goals set out in the field of energy and which at the same time will have favorable influence on essential economic parameters and on the economy as a whole.

America's current role as a reliable competitive producer will therefore largely depend upon the infrastructural, organizational, and procedural measures it is willing and politically able to take, and also the speed with which changes can be brought to realization. The Netherlands have already prepared themselves for the events to come. Infrastructure and terminal capacity are dimensions to solve the considerably increasing transport volumes in the coming two decades engendered by the revitality of the role of coal, not only in Dutch but in the international energy household. New additional terminals are in the planning stage and will start a contribution between 1983 and 1986. More detailed information can be found in the two documents handed to you.

Being traders in an open market, our policy is to invest in our future knowing that the early bird is most likely to catch the worm.

Furthermore, with the constant search for energy, to remain competitive, our present position is that the United States could in my opinion show great wisdom if it were to follow the corresponding policy. By the words of you, Mr. Chairman, your speech to the delegates of the International Coal Trade Conference out of New York in June of this year, the concern expressed by several European delegations during the past 9 months has been comprehended. In that speech you, Mr. Chairman, concluded that forceful action was and is required. We full-heartedly endorse this statement.

Thank you.

[The prepared statement of Dr. van de Gevel follows:]

Wim G.M. van de Gevel
Deputy Director of Mining and Coal
Department of Economic Affairs
The Hague, The Netherlands

Mr. Chairman,

I am honoured to have been given the opportunity to adress this distinguished audience. Although brief, I will try to give you an impression of our energy strategy as well as our points of view with regard to world-wide supply-related developments. It may be added that the tenor of my statement is shared by the Dutch Coal importers and users who are regrettably otherwise engaged and cannot attend this hearing.

In this context I would like to bring to your recollection the dialoque with the Dutch mission in October 1980 and the consultations between the Commission of the European Community and US-representatives in June of this year in which the Dutch Government was also represented. On both occasions these visits were induced by the effects of international demand and supply developments on the US-coal market and infrastructure. My presence here today should be looked upon as an indication of our deepest concern in particular with regard to the present infrastructural situation in the US as well as to the question whether the US will seem able to adequately and timely tackle the bottlenecks involved.

Mr. Chairman,

In 10 minutes it is not possible, and I believe in the context of this meeting not essential, to give you a very detailed view of the energy-situation of the Netherlands. It is however of importance to outline why in the framework of the energy-policy of the Dutch Government coal is to play a relatively significant role as a primary fuel, and how the targets which we have set ourselves are expected to be met.

In September 1979 part I of the Memorandum on Energy Policy was issued. In this memorandum a general view is given of the expected supply and demand situation until the year 2000 of primary fuels in the Netherlands as well as a number of objectives which, in view of energy i.e. oil-problems the world is facing, should lead to a, in an economic sense, more acceptable and from a supply point of view more secure overall energy-balance. One of the objectives, apart from conservation measures, which should and hopefully shall lead to the goals set out, was and is spreading energy-consumption amongst a larger number of sources, in other words: diversification.

In part II of the Memorandum on Energy Policy, the so-called Coalmemorandum, the objective of diversification has been developed in a basic policy for coal, being one of the most important, the means of diversification. This policy aims at a target of at least 40% of public

electricity requirements to be generated from coal by turn of the century and will involve a quantity of 13-16 mln tons of coal per annum. In addition, an effort will have to be made to base a proportion of industrial energy consumption on coal.
When reached, these targets will involve a total steam-coal-consumption of approximately 24-26 mln tons of coal equivalents by the year 2000. If metallurgical-coal use is included in the total figures we may expect to import of total of 29-33 mln tons of coal equivalents.

One and a half years have past since the white-paper on coal was published. A period characterized by extremely low economic growth, increasing unemployment, depressed industrial-financial results and a decreasing primary energy-demand.
Nevertheless this has not changed or affected the principles of our coal-policy. On the contrary I might say.

The, in comparison with our neighbouring countries, relatively high price for electricity, due to the energy-structure in the power-generation sector, has put our industry in a comparatively unfavourable competitive position. This has led to the conviction that the switch to coal even in the present economic circumstances must be regarded as one of the primary conditions for industrial recovery.

In view of the present overcapacity in the utility-sector and in order to timely create more competitive conditions for industry attention is presently focused on the possibilities of an - accelerated - conversion of existing gas and/or oil-fired powerstations, thus aiming for a reduction of the consumerprice for electricity.

In the forwarded documents you will find a more detailed exposé.

Consequently, in spite of depressed GNP and energy-growth rates coal-introduction in utilities will not stagnate; the projected targets of the Coalmemorandum will be amply met. Coal-consumption will grow from 3,3 mln tons in 1981 to approximately 9,4 mln tons in 1990; an increase of 284% in 9 years thus averaging 30% a year.

The formerly indicated goal that in 2000 40% of our generated electricity is to be coal-based maintains a baseline-policy.

As far as coal-introduction for steamraising purposes in industry is concerned it is evident that cost-reduction or restoring competitiveness form the main element and incentive to switch to the application of coal.

Because new advanced techniques, judging by the progress

of things, will not be timely available and therefore cannot contribute to this cause, the Dutch Government has initiated a study to analyse and evaluate the possibilities of industrial introduction of conventional coal combustion; centralized combined heat- and power-production units are regarded as preferable.
Potential users however show hesitancy and reluctancy to invest when confronted and faced with staggering price-increases due to demurrage-charges, congestion related supply-interruptions, strikes and - political and financial - uncertainties with regard to infrastructural improvements and developments in producing countries. For consumers/consuming countries it is essential to achieve a balance between the security of supply-diversification of source being one of the means to this end-and costs that is the landed-price to be paid for a ton of coal.

It should be evident that consumers seek assurance of supply, price-setting and quality as well as adequate and cost-efficient handling and transportmodes. Whether a supplier is looked upon as reliable depends among other things on his willingness and ability to timely develop the necessary structures and facilities. It is recognised by consumers that long term contracts are in this connexion of mutual interest and should prove benificial to all concerned.

Looking at the supplyside of coal one may conclude that, inspite of vast world resources and reserves, only relatively few countries due to political, strategical or infrastructural constraints, are potentially capable of substantially contributing to the growing world-coal-market.

The US is considered
to be the most flexible of all producers, both in terms of quantity and the range of qualities they can offer. By tradition the US have been and hopefully will remain reliable suppliers of coal to Dutch industry. At present the US supply 40% of our total coal-imports and consumption (this includes coking-coal).

It is expected that in the years to come US-coal could in principal well maintain its present position in the Dutch energy-household.

As I indicated before,consumers are seeking for sources which will enable them to meet the goals set out in the field of energy and which at the same time will have a favourable influence on essential economic parameters and on the economy as a whole.
America's current (and future?) role as a reliable, competitive key-producer will therefore largely depend on the infrastructural, organizational and procedural measures it is willing and politically able to take and also the speed with which changes can be brought to realisation.

The Netherlands have already (and always have) prepared themselves for the events to come.
Supra-structure, infrastructure, portdepth and terminal-capacities are dimensioned to absorb the considerably increasing transportvolumes in the coming 2 decades engendered by the revival of the role of coal not only in Dutch but also in the international energy households.

New, additional terminals are in an advanced planning stage and will start their contribution between 1983 and 1986. More detailed information can be found in the two documents handed to you together with a copy of today's speech.

Being traders in an open market it is our policy to invest in our future knowing that"the early bird is most likely to catch the worm". Furthermore the constant search for more efficient methods and modes to remain competitive and reduce consumercosts has formed the firm basis of our present position.
The United States could show great wisdomif it were to follow a corresponding policy.

Judging by the words of Senator Warner's speech in his adress to the delegates of the International Coal-Trade Conference held in NewYork on June 22th of this year, the concern expressed by several European delegations during the past 9 months has been well comprehended.
In that speech Senator Warner concluded that forceful action was and is required. We full-heartedly endorse this statement.

Thank you.

Current and projected consumption and transit of coal in the Netherlands

1. Introduction

In the Coal Memorandum (issued in 1980) the Dutch Government presents the coal policy for the coming years. The main objective of this policy is to re-introduce the use of coal in the electricity-sector and the industry. The Government intends to pursue an active and stimulating policy. A main element of this policy is a ƒ 750 mln R,D&D-program to generate new ways of coal use (such as FBC, coal gasification) and to withdraw bottlenecks in the whole coalchain. Based on the effectness of the coal policy and the uncertainty of alternative energysources, such as nuclear energy the Government is confident that the projected consumption of coal mentioned in the Coal Memorandum will at the least be realized. Certainly when the export capacity of the coal producing countries will follow the world coal demand and the price of coal remains based on the cost-price plus profit-system.

To secure the coal supply, the Dutch Government thinks it necessary that the coal imports should be spread over the producing countries and that at least 80% of the total coal use should be contracted on a long term basis or on participation of Dutch coal users in foreign coal mines. In addition to participations of Estel/Hoogovens and some big coal importers, at the moment Holland Carbon Fuels (a joint venture of Estel/Hoogovens, DSM and the SEP) is searching for possibilities of participation. Although in some parts of the Netherlands there are coal deposits, captive coal production is not likely and when in future produttion will be considered, the production will be at the most 3 mln tonnes per annum due to urbanisation constraints.

2. Current coal consumption

The current steamcoal consumption is shown in the following table:

	coal consumption	remarks
public powergeneration	4.4 mln tons / annum	2200 MW installed coal fired capacity
industry	0,5 mln tons / annum	various small users

The consumption of cokingcoal is directly dependent on the situation in the iron and steel industry. At the moment, due to the renovation of the cokesfactory at Hoogovens IJmuiden, also cokes are imported. Total imports of cokingcoal and cokes are:

cokingcoal: 3.2 mln tons/annum
cokes: 0.6 mln tons/annum

3. Expansion for the eighties

Fairly soon an increase of the use of coal is expected in the following areas:

1. In the electricity-sector new coal fired installations have been planned for 1987 and 1988 (1100 MW). Moreover the studies concerning the re-building of oil and gas fired installations to coal fired installations will be completed this year. Most likely the installations at the Maasvlakte (1050 MW) and Borsele (350 MW) will be adapted for coal use. There are also plans for various non-conventional installations (integrated coal gasification and power generation). These projects are in the final stage of design.
   In 1990 total consumption of coal in the electricity-sector will be at the least 10 mln tons per annum.
2. In the industry some large companies are designing and building coal installations. For instance DSM (steam and power generation), Hoogovens (coal injection in the blast-furnace), Gasunie (coal gasification for down-grading the high BTU-natural gas from the Northsea).

Apart from these plans various demonstrationprojects, (FBC and coal gasification) are considered. These demonstrationprojects will have there effect in the eighties. In 1990 total use of steamcoal in the industry will be at least 4 mln tons per annum. The use of cokingcoal will slightly increase in the period 1980 to 1990 to approximately 5 mln tons/annum.

6. Long term prospects

The basic fuel for the generating capacity to be installed in the period 1990 to 2000 will at any rate have to be selected* that by the year 2000 at least 40% of the total electricityproduction is coal-based. Looking at the current activities concerning the re-introduction of coal in the industry the Dutch Government believes that the objectives for the year 2000, mentioned in the Coal Memorandum will be reached. Coal use for the year 2000 has been estimated to reach:

* such a manner

			mln tons/annum
electricity sector			15.0
industry	a.	conventional use, FBC and coal-oil mixtures	5.5
	b.	gasification	7.5
	c.	cokesproduction	6.0
			34.0

7. Prospects and plans concerning infrastructure and superstructure within the coming two decades

7.1. Introduction

As the figures in table 2 show, substantial coalflows, both for domestic use and transit-purposes, will find their way to the Dutch sea-ports, where the volumes involved will have to be landed, discharged, stored transhipped and distributed.
The necessary infrastructure [illegible]

facilities for these operations are and will be available as developments in this field are expected and will in terms of quality and quantity keep pace with the growing import volumes of coal.

As the combined inland transport-capacity of waterways and railways appears to be adequate in the time-frame considered, special attention will be given in this paper to the seaportfacilities.
In view of the generally expected use of large(r) bulk-carriers for the long-haul transport of coal in the near and more distant future a major role is in this respect envisaged for the two principal Dutch seaports Rotterdam and Amsterdam.

5.2. Rotterdam

EKOM and Waalhaventerminal

At present four (4) terminals are accessible for the discharge of coal (table 1) of which only the EKOM-terminal (Oil and Coal Terminal Maasvlakte) can handle large bulk-carriers up to 250,000 dwt. The terminal is equiped to discharge seavessels and to load coasters and barges; it is not designed to load large(r) sea-vessels (seatransit).

Accessibility of the remaining three ore and/or coal terminals, Botlek, Vulcaanhaven and Waalhaven, is limited to smaller vessels ranging from 40.000 to 70.000 dwt.
The Waalhaven location is used for coal-handling only; the push-barges coming in from the Federal German Republic and loaded with coal for seatransit-purposes are all discharged there. In the period 1982-1983 the Waalhaven-activities shall be transferred to the EKOM-terminal on the Maasvlakte. By then the EKOM ore/coal-handling capacity will haven been increased by an additional 10-12 mln tons to 22-24 mln tons per annum and will be more than adequate to absorb the Waalhaven-volumes (ranging from 6-8 mln ton as an average).
In view of the expansion(s) envisaged,EKOM has recently

extented its discharging capacity with an additional -maximum-3000 ton/hour (1500 t/h=average) discharging-installation. It cannot however be put to full use as the necessary quay-extension (450 metrs) will not be completed before the end of this year (1981).
At present app. 2 mln tons of coal and 10 mln tons of iron-ore are discharged/handled per year. Coal through-put is expected to increase to app. 12-15 mln tons between 1990 and 2000, with iron-ore stabilizing at its present position.

Maasvlakte Coal Terminal

In june 1980 six multinational oil and coal companies signed an agreement thus establishing the Maasvlakte Coal Terminal on paper.

The terminal will be situated on the Maasvlakte, an area i.e. located south-west of the New Waterway or harbour entrance.

In the initial phase (1983-1985), planned to be operational in 1983, the terminal will be "equiped" (barge-loading berth of 250 metrs and conveyor-systems) to handle app. 6 mln tons of coal per annum. The terminal (MCT) will however in this stage be using the discharging-services and deepwaterfacilities of the adjacent to the Ore and Coal Transhipment Terminal, the EKOM, (see table 1) with which a service-contract has been signed covering a period of two (2) years.
By 1985 (fase 1) the MCT's own sea-vessel discharging berth, which is to be dimensioned to suite 250.000 dwt-carriers, will have been completed. Waterdepth at the berth will however initially be limited to 65 ft (accessible to fullyloaden 200.000 dwt carriers and over). Throughput capacity according to plan(s) is to reach 8 mln tons per annum.

In phase two (1990-1995) further terminalexpansion will run parallel to developments taking place in the coaltrade. During this time-period handling-capacity is projected to reach 16 mln tons per annum. During this phase both barge loading-berth and sea-vessel quay will undergo extension. In addition the waterdepth at the seavessel quay will be brought to 68 ft.

In the final phase (1995 ——) after adding the necessary equipment and further lengthening of loading and discharging berths, 25 mln ton per year could be handled, occupying a total area of 115 ha.

For the second and final phase no permit-applies have been made as technical and economic developments in the field of coal can as yet not be assessed in terms of quantity.

5.3. Amsterdam

Amsterdam's principal bulk (ore/coal/grain)-terminal is the Overslag Bedrijf Amsterdam (OBA Transhipment Terminal Amsterdam) with an overall average-capacity of 12 mln tons per annum of which 4 mln tons is currently "occupied" (with a maximum discharging cap. of 6 mln tons) for coal handling.

OBA has recently developed plans for a new additional coal/ore-terminal north of the IJmuiden-jetty-heads adjacent to the Steelworks (Hoogovens).

Startingcapacity of this new terminal is projected to be 8 mln tons p.a. with a theoretical coal/ore handling ratio of 50-50. It should be noted however that a ratio will largely depend on market-trends for both commodities.

Further expansion is kept in mind but again will depend on market-factors.

The discharging quay of the terminal will be dimensioned to receive vessels up to 150.000 dwt fully-laden. The terminal will be designed to discharge and load sea-vessels as well as to load barges (units of four push-barges with a total load of 10-12000 tons).
Activities are expected to start between 1985 and 1987, the starting date depending on the time involved with procedures following permit-applications.

5.4. Conclusion

By 1990 Dutch sea-port terminals, including realisation of the MCT-and OBA-plans will have reached a combined anual coal throughputcapacity of [illegible] tons of coal per annum (of which Rotterdams' share will be 60% versus Amsterdam 12%); by the turn of this century total capacity will be 63-66 mln tons p.a. (Rotterdam: 66%; Amsterdam 15-18%).

Looking at the projected coal-flow- and throughput data for the coming two decades, the conclusions may be drawn that:

1. coalhandling facilities/capacities will be adequate to accomodate the projected imports for national coal demand well beyond the year 2000;
2. the distributionfunction of these ports for other countries (international transit) i.e. the currently estimated flows to these countries will meet no technical constraints either, at least not untill the late nineties.

table 1

Coal and Ore throughput/discharging capacity

	1980	1983	1985	1990	2000
Rotterdam area (Rijnmond)					
Waalhaven	6	-	-	-	-
Botlek	18	18	18	18	18
Vulcaanhaven (Vlaardingen)	6	6	6	6	6
Maasvlakte-EKOM-terminal	12	22	22	22	22
Maasvlakte Coal Terminal (MCT)	-	6	8	16	24
Total Rijnmond	42	52	54	62	70
of which available/ for coal	12	20	24	28	40
Amsterdam					
Westhaventerminal	12	14	14	14	14
Terminal de Rietlanden	5	5	5	5	5
Total Amsterdam	17	19	19	19	19
available for coal	5	7	7	7	7
IJmuiden (steelworks)	12	12	12	12	12
available for coal	4	4	4	4	4
IJmuiden-OBA-terminal	-	-	-	8	8-13
available for coal	-	-	-	4	4-7
Total IJmuiden	12	12	12	20	20-25
available for coal	4	4	4	8	8-11

Note 1
Figures for Rijnmond, Amsterdam en Terneuzen include transit-activities. Remaining ports have a local function only.

Note 2
Listed capacities are averages and in optimum situations capacity increases substantially.

parameters:
vessel-size; timing; personnel-,technical-disturbances etc.

Continuation table 1

	1980	1983	1985	1990	2000
Dordrecht	1	1	1	1	1
available for coal	1	1	1	1	1
Eemshaven	-	-	3	3	4
available for coal	-	-	3	3	4
Terneuzen	3	3	4	4	4
available for coal	2	2	3	3	3
Total Dutch-capacity for bulk commodities	75	87	92	109	119-123
Total Dutch-capacity available for coal	23	34	42	50	63-66

table 2

Total Coalflow projections (both domestic and transit) versus throughput capacity in the main Dutch sea-ports (1980-2000)

(in mln tons)	1980	1985	1990	2000
total coalflow	18	25-27	39-44	59-64
total coal-throughput capacity	23	40-43	49-51	63-66
distribution of total throughput capacity (in % of total)				
Rotterdam area:	55%	60%	60%	66%
Amsterdam area:	25%	15%	12%	11%
IJmuiden area :	15%	10%	15%	15%-18%
Eemshaven :	-	4%-5%	5%-6%	5%
rest :	5%	5%	7%-8%	3%-1%

2) THE NECESSITY OF U.S. PORT-EXPANSION;
A DUTCH POINT OF VIEW.

Statement before the Merchant Marine Committee
U.S. House of Representatives.

Dr. Theo Schut
Staff officer, Department of Economic and Port affairs
Coördinator of the Rotterdam Coal Projects
Municipality of Rotterdam.

July 28, 1981

Preface.

The Municipality of Rotterdam is honored and delighted that it has the opportunity to give an impression of its views, before the House Merchant Marine Committee, on the necessity of the expansion of U.S.-ports, especially the eastern ports, for the export of coal.

The views expressed in the following are not only related to the position of the Netherlands, in particular the port of Rotterdam, as the Gateway to Europe, but also in relation to the growing demand for coal in the Netherlands and Western Europe.

In this paper emphasis is put on the following issues:

- dutch coal demand and the role of the port of Rotterdam in the European import of coal.
- future shipsize of bulkcarriers and the coal handling facilities of Rotterdam and other dutch ports.
- financing port projects; costs and benefits; the Rotterdam case.
- the need for expansion of the U.S. coal ports.

Introduction.

The end of the 1970's can be looked back on as the years when coal was rediscovered.

The world-wide growth of energy demand and the continuous rising of the price of crude oil, the most important energy resource on the supply-side, has led to a policy, especially in the western world, of energy saving on the one hand and on the other, a policy of diversification to other energy resources than oil.

Although the Netherlands is one of the smaller European countries, energywise it is quite sizeable. Thanks to our vast natural gas resources we are a major European energy exporter, in fact we are sometimes been called the gassheiks of Europe. However, next to energy saving, diversification of energyresources is the essential part of energy policy in the Netherlands. This policy is due to the diminishing availability of oil and gas and because of the idea that certain risks are connected to the dependence of the industrialized world on imported oil.

For several years now, emphasis has been put on the importance of a greater contribution of coal as an energyresource, in order to realize the diversification goal.
Although at this moment use of coal still is of minor importance, future coal demand will rise rapidly due to the existing industrial and governmental plans for energy and power use of coal (coalgassification and conversion to liqueds, fluidised bed combustion) and because of the planned conversion of traditional gas and oil based power plants to coal.

This rising coal demand in the Netherlands as well as in the other western European countries and because coal winning in commercial quantities has low economic possibilities in Europe, will lead to a rising coal import, especially from countries across sea.

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Dutch coal demand and the role of the port of Rotterdam in the European import of coal.

Coal has been handled in dutch ports for a very long time. In 1956, for instance, the Port of Rotterdam handled 16 mln tons of coal. Because of the use of other energy resources the amount of coal handled since that year decreased, but the last years the amount handled is increasing again.

In 1980 the dutch ports, especially the ports of Rotterdam and Amsterdam, handled over 16 mln tons of coal. Next to about 3 mln tons solely with the dutch steelmills as destination, only 3 mln. tons is actually being consumed in the Netherlands. The remaining 10 mln tons of coal is transported directly, mainly by inland waterway barges, to European hinterland countries as Western Germany, Belgium, France and Switzerland.

Of those 16 mln tons of coal handled in dutch ports in 1980, the share of the port of Rotterdam was 10,5 mln tons, or more than 65%. And to give an impression of the role of our port in European context: the eight most important ports of Europe handled over 30 mln tons of coal in 1978 of which the port of Rotterdam took one third.

The import coal handled in the port of Rotterdam has its origin in all parts of the world. Because the port of Rotterdam is accessable for large bulkcarriers, the countries with deep loading ports are the most important. To illustrate: in 1978 more than 45% of the import coal handled in Rotterdam came from South Africa, 33% from Australia and 15% from North America.

The role of the port of Rotterdam in the international coal distribution function is not only restricted to the import of coal by ocean going vessels and inland transportation by push barges, rail or further transportation to other european destinations by smaller sea going vessels. Rotterdam is also important for the over sea export of German coal.

As stated above, diversification of energy resources is an essential goal in future dutch energy policy as is the case in other European countries. The aim of the dutch government is that, at least 40% of public electricity demand is supplied by coal at the turn of the century next to industrial energy use by means of coal and different coal gassification projects (to illustrate Exxon and Shell have investmentplans in this field for several billion dutch guilders in the greater Rotterdam area)
This means, because of the fact that coal from dutch mines is not economicaly and technicaly feasible, that almost 33 mln tons of coal will have to be imported in the year 2000. So in the coming two decades the domestic consumption will lead to a drastically increase of coal import in the Netherlands, which is tenfold compared with the situation of this moment.

In the Netherlands we expect to play an important role in the coal transhipment to other European countries, because of the gateway function of dutch ports, in particular the port of Rotterdam. The expected increasing demand of import coal by other European countries will mean that almost 50 mln tons of coal per annum will be handled in dutch ports in the year 2000.
The port of Rotterdam is expected to handle more than 60% of these 50 mln tons per annum, and, when handling this amount of the total european coal import, it can be stated that the role of Rotterdam is an important one.

The function of the port of Rotterdam is, to the opinion of the dutch central government in a bill on energy policy, to be the central coal terminal of the Netherlands and of western Europe.

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Future shipsize of bulkcarriers and the coal handling facilities of Rotterdam and other dutch ports.

At this moment, as will be the case in the future, important advantages based on economies of scale are realised by the use of large bulkcarriers in seatransportation. This is mainly caused by the high share of fuel costs in total seatransportation costs, a cost component wich will further rise in future.
Of course the realisation of economies of scale depends on the amount of cargo transported as well as on the transportation distance. And although terminal costs rise by using larger bulkcarriers the very long transportation distances restrict the influence of terminal costs on total transportation costs.

The volume of the flow of coal and the average seatransportation distance are at this moment, but certainly in the future when looking at the coal transportation forecasts, sufficient to realise the advantages of economies of scale when using large and very large bulkcarriers.
However, the possibilities of further growth of shipsize for coal transportation, will also be determined by the developments of the accessibility in the loading and unloading ports.

An analysis of the present fleet of coal-ships shows that the largest coal vessel measures 175.000 dwt and the largest ore vessel a round 275.000 dwt. We expect that by the year 1990 the maximum shipsize for the transportation of coal will be 250.000 dwt and will grow, at the turn of the century, to 300.000 dwt. Next to the maximum shipsize we in Rotterdam expect that the average shipsize of bulkcarriers for coal transportation larger than 100.000 dwt, in the nineties will be 150.000 dwt.

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To illustrate the savings on transportation costs when using large bulkcarriers, the following example:
Just recently a 275.000 dwt vessel was chartered for the transportation of bulkcargo, in this case iron ore, from Brazil to Rotterdam for $ 3,3 per ton. The same volume of iron ore transported with 60.000 dwt bulkcarriers to ports with restricted accessibilities would cost $ 10 per ton. Steelmills will save on transportation costs on this scale about $ 7 mln when using a 275.000 dwt vessel instead of several 60.000 dwt. ships.

The present accessibility of several loading and unloading ports for coal transportation to Europe involves that at this moment large bulkcarriers up to 150.000 dwt can be used. When taking into account the at present known infrastructure plans in different European ports, in particular the plans regarding the deepening of certain port-entrances, in the near future, the 250.000 dwt coal ship is able to be handled in different European ports.
For all European ports the 150.000 dwt ship is a objective to be favoured.

Being the gateway to Europe, with Rotterdam as the largest port in the world with total seaborne turnover ranging between 250 and 300 million metric tons each year, the Netherlands is well prepared to serve as the main European coal distribution centre. At present there are five terminals in the port of Rotterdam where dry bulk cargo can be handled, four of which handle coal, apart from the possibility of handling dry bulk cargo on buoys. At present two dry bulk cargo terminals in Rotterdam are accessible for the discharging of coal from large bulkcarriers up to 250.000 dwt.

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A new major coal terminal will be built on the Maasvlakte in the port of Rotterdam, one of Europe's largest plans for port expansion.
The final annual capacity of this Maasvlakte Coal Terminal in the nineties will be over 25 mln tons, with a maximum unloading capacity of almost 10.000 tons each hour.
This coal terminal can already accommodate large bulkcarriers up to 250.000 dwt when it comes into opperation in 1983 and will then have an initial capacity of 5 mln tons. As other terminals in the port of Rotterdam this coal terminal will have transfer capability by pushbarges and rail. The storage capacity in the final stage of the terminal will be 4 mln tons.

Just recently the municipality council of Rotterdam has decided that the accessibility of the port will be enlarged to 72 feet ships draught, to be realised at the end of 1984 while at the same time investigations are made on the possibilities of deepening the port entrance to 75 feet.
In this context it is worthy to be mentioned that our new quaywalls to be constructed presently for handling ores and coal will be demensioned for 72 feet and even 75 feet ships draught.

Other dutch ports such as Amsterdam, the second largest seaport of the Netherlands, will also handle in the future an important part of the national coal import and international coal distribution. Vessels up to 45 feet draught can be discharged and the dry bulk cargo capacity of 12 mln tons per annum could be doubled if access for vessels over 50 feet draught and improved inland waterways for barge traffic is provided.

By 1990 the dutch terminals will have reached a combined coal throughput capacity of about 65 mln tons
Next to these combined coal handling capacities of the dutch ports, the highly developed inland transportation infrastructure, especially the inland waterways and railways, will meet no technical constraints and will be adequate to accommodate the projected imports for national coal demand and transhipment to other European countries well beyond the year 2000.

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Financing port project, costs and benefits: the Rotterdam case.

With reference to the National Port and Navigation Improvement Act of 1981, which was introduced by Senator John Warner with sixteen other senators, on june 18 this year and which sets forth a funding mechanism calling for a 60-40 federal-state ratio for construction of projects and a 75-25 ratio for operation and maintenance of projects, and the measures just recently introduced by congressman Mario Biaggi, in the same field but with a 50-50 federal-state ratio, in the following attention is paid to the dutch way of financing port projects and the costs and benefits which go along with these projects.

In the Netherlands the important ports, like Rotterdam and Amsterdam, are municipality owned. This means that the central government has no direct participation in decisions about the financing of port activities, expansion or improvement of port infrastructure as port basins, quays, etc., the issue of port and industrial sites, the determination of port charges and land rents etc.
So, the responsibility of port exploitation and management means that all expenditures for construction, improvement and maintenance of port infrastructure lies by the municipality.
The maritime port-entrances from sea and the rivers and other inland waterways, are however owned by the central government.
The latter means that for instance deepening the port entrance and the maintenance of the rivers and inland waterways is first of all a responsibility of the central government.

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Since a very long time the central government asks, for the construction or deepening of the inland waterways and maritime port entrances, a contribution in the costs. Usually this contribution is fixed to 1/3 of those investment costs. Maintenance costs of port entrances and rivers always have been for account of the central government.
The consideration of the central government for these contributions by the port authorities was and still is that the owners can pass these costs on to the users by means of port dues.

Because this so called 1/3 (port administration) - 2/3 (central government) arrangement has led to a very large increase of debts and financial risks to the port authorities, while a passing on of 100% of these costs to the users leads to a deterioration of the position of the port compared to other competitive ports, the central government has reconsidered this arrangement. The result of this reconsideration is however, from a point of view of a port owner, so far been disappointing.
For, starting point in the negotiations for the cost-share remains the old 1/3 - 2/3 arrangement, but both parties can come with arguments to change this arrangement.

To illustrate the dutch situation regarding the financing of deepening port entrances by dredging, the Rotterdame case is given in de following.

The port of Rotterdam, stretching some 40 kms form the North Sea to the heart of the city and with the water area of the harbour alone measuring over 5300 acres, has been developed by the municipality of Rotterdam.

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Rotterdam has invested a sum of over 2,5 billion guilders (at todays exchange rate more than U.S. $ 1 billion) in the ports infrastructure. The port entrance and the river belongs, as mentioned earlier, to the central government.

Since 1920 the central government has, on the request of Rotterdam, progressively deepened the river and its entrance from the sea at Hook of Holland. The central government paid 2/3 of those investment costs and the municipality of Rotterdam paid 1/3. The costs of maintaining the river and its entrance to sea at the required waterdepth has always been carried fully by the central government. This situation prevailed up to 1967 and a waterdepth allowing sea-going vessels to enter or leave our port with a draught of 57 feet.

In 1967 it was decided to deepen the port entrance up to 62 feet and the investment costs to be paid entirely by the municipality of Rotterdam. Maintenance costs still to be fully carried by the central government. Since than this new rule has applied also for all subsequent deepenings for the port of Rotterdam. The present maximum allowable ships draught is 68 feet. As mentioned before, just recently it has been decided to deepen the port entrance to 72 feet at a cost of $ 50 million Again the same financial solution is valid however, this time the central government has agreed to quarantee 50% of eventual losses of depreciation and interest in the case that the expected additional traffic via the port will not materialize.

The municipality of Rotterdam finances its investments in the port infrastructure and in the deepening of the state river and the entrance channel by loans on the capital market. The central government finances its part by the yield of general taxes.

The total cost to the municipality of depreciation and interest on investments and of maintaining the harbour basins at the required waterdepth, of maintenance of quay walls, etc. and of personnel and management has to be recovered by income from leasing port sites to stevedoring companies, wharehousing companies and industry and by income from harbour dues on vessels using the port's basins (sea going vessels and inland barges).
In the port of Rotterdam about 60% of the revenues are traffic dependent and consist out of harbour dues and pilotage dues. About 40% of the port revenues are traffic independent. They are mainly land rents and quay dues.

Port costs are for 95% traffic independent because they consist of capital costs, maintenance costs and labour costs, and only 5% of total port costs are traffic dependent, for instance the collection of charges.
As such a picture appears of a port-exploitation which is sensitive to conjuncture and of which revenues rise due to the growth of the flow of goods.

The most important revenues of the port of Rotterdam are the harbour dues for sea going vessels. These dues are charged for the use by sea going vessels of the harbours, quays, mooring posts, buoys and other municipal facilities.
They are computed on the basis of

- the gross tonnage of the vessels in bruto cubic meters, and
- the number of metric tons loaded and/or unloaded cargo.

Since 1969, when the deepening to 62 feet was ready, Rotterdam had to cover the extra investment costs of deepening over 57 feet.

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This was done by raising harbour dues roughly by 60% for all incomming tankers unloading crude oil, regardless of size of draught.
In this the costs were spread over all tankers discharging crude oil and the use of large vessels was thereby stimulated.
With the present development of bulkcarriers, transporting ore and coal, with draught over 57 feet it will in the near future have to be considered whether this type of vessel will be included in a higher rate or not.

As to pilotage dues, the general rule is that pilotage by state or city pilots is obligatory for sea going vessels and that pilotage dues have to be paid.
State pilotage dues are payable for pilotage of incomming vessels as far as the entrance to municipal harbour basins and back to sea. Rates depend on piloted distance and draught of the vessel.
Municipal port pilotage dues are charged for piloting sea going vessels from the river to the berth in a harbour basin and vice versa.
On the river there are no navigation dues levied by the central government as this is against the Act of Mannheim, an international treaty of 1869.

In addition to the official rates, users of the port of Rotterdam have to pay charges to private firms for their services, such as the mooring and unmooring of vessels, the use of tugs, agency fees etc.

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The need for expansion of the U.S. coal ports.

The United States has tremendous reserves of high quality coal, estimated on 475 billion tons, and more than any other country the U.S. has the capability to become a major coal exporting country provided that the problem areas which might limit that capability to produce, supply and export more coal are clearly identified and solved in time.

The most important constraints to a sharp increase of coal exports from the U.S. are the existing transportation and port limitations.

The surplus of coal production capacity at the one hand is in strange contrast with the fact that on the other hand there is concern abroad because the U.S. cannot get the potential production surplus out of the country in view of inadequate infrastructure.

To quote Senator John Warner, in his address to the International Coal Trade Conference last month:

> "The U.S. sold 90 mln tons of coal in the export market in 1980, an increase of 39 percent, benefitting the U.S. balance of payments by a sum of $ 4,5 billion, but this overwhelming world demand for America's coal also created incredible vessel congestion, and unconsionable loading delays, resulting in enormous additional expense to coal importing customers and to American coal producers too".

It has been determined that export sales of 10 mln tons, worth at least $ 400 mln, were lost because the U.S. ports could not efficiently serve all the ships seeking American coal. Due to the congestion of the Eastern ports in 1980 $ 500 to 600 mln has been lost on demurrage instead of benefitting both producers and

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consumers, and this amount will increase in the coming years if no action is taken quickly. Action to be taken both by the private and the public sector.

To decrease long waiting periods, which have already led to the fact that coal from the U.S. costs $ 5 per ton more than is necessary, it is imperative that new coal handling facilities, similar to those in other large coal exporting and importing ports in South Africa, Australia, Canada and the Netherlands, have to be built as soon as possible to meet the growing demand.

Such facilities should have open storage yards in which many varieties of coal can be blended and be moved by fast belts.

The various new investment plans announced in the U.S. the past year, however, look promissing.

Many dutch coal trading companies hope these plans will be materialized as scheduled.

As already put forward earlier in this statement, an important part of the coal trading world has turned to large bulkcarriers, vessels of 100.000 dwt and greater. It has to be stated that the U.S. does not have one port which can adequatly handle these large vessels.

So besides handling facilities, there is an immenent need for deepening the ports so as to allow U.S. coal to be exported in larger bulkcarriers than is presently possible.

The capacity to load larger vessels will create the economies of scale that would make the U.S. more competitive (especially with the other coal supplying countries like Australia and South Africa which do have ports with a large accessibility) and thereby would benefit both producers and consumers.

Regarding the various dredging proposals, particularly the one for Hampton Roads, it has to be stated that it is crucial that such works are timely started and completed.

If they were to take, say, up to ten years, precious time and valuable opportunities would be lost. Expediting the process seems, therefore, absolutely necessary.

To illustrate the above, the following example:
The port of Gdansk in in Poland, a sisterport of Rotterdam, and Poland being one of the major coal producing and exporting countries of the world, has been working on plans to enlarge the coal handling facilities, especially to meet the expected future increasing world coal demand.
But because of the present economic situation in Poland, especially the introduction of the five-day work week, which has an important influence on the total coal production in Poland, the execution of the port infrastructure plans has slown down.
This means that the world coal supply function of Poland in the next few years will decrease and due to the mentioned infrastructure problems of the Eastern ports, the U.S. will not be able to fill this new hole in the coal market.

As to the permitting process and the financing aspects of new handling facilities in ports, but especially the port dredging projects, it is clear that the U.S. Federal Government will play an important role.
The government can expedite the permitting process which has to be completed before construction of new facilities can be started. And, as stated above, time is of essence.

As to the financing of projects by the central government, it is clear that the advantages of adequate port facilities and port accessibility for large bulkcarriers are not restricted to the port owner or port authority.

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Especially in the case of coal, the advantages will be nationwide, for instance for the coal producers and the many mine workers who are now involuntarily unemployed because of substantial production surplus capacity, while large coal demand is existing. Further more, advantages will appear to the total transportation sector from the mines to the ports, and not in the last place the measures to be taken will have a positive influence on the U.S. balance of payments.
More over, next to the positive effects diretly to the coal producing and tranportation sector and their backward and forward linkages, there are many positive direct and indirect spin-off effects when facilities in U.S. ports are upgraded. For also other transportation and port activities then in the coal sector, for instance the general cargo and container activities, will have benefits of the mentioned port projects.

To conclude mr. chairman, and speaking as a representative of the gateway to Europe and possibly the future central coal terminal of western Europe, I hope that a strong energy link with your country and the Netherlands will arise.

It is clear that the U.S. could become a major, if not the major supplier of coal in the world, certainly when the main restraints, to a sharp increase of U.S. coal export, as I mentioned earlier, are solved. You have no laws controlling the export of coal.

Some protectionist sentiments could develop later on, certainly when domestic consumers need more coal than you can provide in certain periods. Of course, the foreign consumers would like to get the confirmation of the U.S. Government that in such times it will nog discriminate between domestic consumers and those abroad and that contracts will fully be honored.

Potentially you have all that is needed to become the worlds leading coal exporter; you have the reserves, you have the capital and you seem to have the political and administrative commitment to coal export.
As there seems to be a dangerous lack of awareness in many countries of how long it will take to have new facilities ready for operation, it is essential that the U.S. Government will take decisions now.

Thank you for your attention.

Senator WARNER. Thank you very much for your helpful testimony, and we will have the record follow your statement.

The Chair has to make a brief phone call, so we will recess for about a minute and a half.

[Brief pause in the proceedings.]

Senator WARNER. We will resume the hearing and Senator Specter will preside in my absence.

Senator SPECTER [presiding]. Thank you, Senator Warner.

STATEMENT OF HON. ARLEN SPECTER, A U.S. SENATOR FROM THE STATE OF PENNSYLVANIA

Senator SPECTER. I want to commend Senator Warner and the committee for scheduling this hearing on America's role in the world coal export market before this Subcommittee on Energy and Mineral Resources. It is good to hear from one's customers and the European coal consuming nations are America's customers. We want to have happy, enthusiastic, satisfied customers, and we will obviously learn much from what is testified here today.

In 1981 export coal represented over, and does represent over 12 percent of America's bituminous coal market. This is an important market, and it is growing.

We must always keep in mind that there is much more to a viable export coal market than the first step which is mining the coal. Not only must the coal be mined, but it must be loaded expeditiously in vessels available and with a draft appropriate for both the American port and the receiving port. Certain mixes of coal are often required. Thus the need for coordination is substantial, and the possibilities for confusion is always, possibilities for confusion are always present.

Under such circumstances, long-term contracts will permit long-term planning and reduce uncertainties. I believe you will learn that this is what our European customers need, and I know this is what our European customers have expressed that they want.

In short, we would like to be assured of customers, and our customers would like to be assured of a reliable supply of coal for power generation. To accomplish these long-term arrangements on a timely basis, it will be necessary for us to find a fast track system for the permit process for new coal mines because the present process makes it much too long. It is useful to note I think that the Commonwealth of Pennsylvania, my home State, over a year ago earmarked some $26½ million to the Consolidated Rail Corp. to modernize and have increased capacity for export coal pier 124, from approximately 3 million tons to 10 million tons per year.

Another Delaware River port facility, Port Richmond, will be rehabilitated by private interests with modern coal facilities eventually able to handle some 15 million additional export tons of coal per year.

Last year Conrail acquired 1,550 open top hoppers valued at $60 million to continue the modernization of this fleet, and the previous year Conrail completed taking delivery of 4,000 new 100-ton hopper cars. In addition to the new acquisitions, Conrail has rehabilitated a total of 20,000 hopper cars since April 1, 1976.

Several coal-producing States, including Pennsylvania, critically need more modernization and rehabilitation of the locks and dams of the Ohio River system to speed the delivery of coal to Gulf ports. These steps hopefully will reduce port congestion which according to the National Coal Association, costs the customers from $15,000 to $20,000 per day of waiting time.

I am pleased to join in welcoming the representatives of the European coal consuming countries, and I regret that I could not arrive earlier because of other commitments. The Senate is a very busy place, and I regret I will not be able to be sure all the day, but I shall review the notes carefully.

I very much appreciate the chairman's convening these hearings and look forward to the testimony and the information which will be gleaned from these proceedings.

Now I am pleased to call upon Mr. Luyckx for his testimony.

[The prepared statement of Senator Specter follows:]

ENERGY AND MINERAL RESOURCES SUBCOMMITTEE
OF THE ENERGY AND NATURAL RESOURCES COMMITTEE

OVERSIGHT HEARINGS ON "AMERICA'S ROLE IN THE
WORLD COAL EXPORT MARKET"

NOVEMBER 10, 1981
8:30 A.M.
ROOM 3110 DIRKSEN SENATE OFFICE BUILDING

OPENING STATEMENT OF SENATOR ARLEN SPECTER

Mr. Chairman, I commend you for this hearing on "America's Role in the World Coal Export Market" before the Subcommittee on Energy and Mineral Resources. It is good to hear from one's customers and the European Coal Consuming Nations are America's customers. We want to have happy, contented, enthusiastic, and satisfied customers. We will learn much from them today.

In 1981, export coal represents over 12% of America's bituminous coal market. This is an important market and it is growing!

Mr. Chairman, we must always keep in mind that there is much more to a viable export coal market than the first step - mining the coal. Not only must the coal be mined, but it must be loaded expeditously in vessels available and with a draft appropriate for both the American port and the receiving port. Certain mixes of coal are often required. Thus, the need for coordination is substantial and the possibilities for confusion significant.

Under such circumstance, long-term contracts will permit long-term planning and reduced uncertainties. I believe we will learn that this is what our European customers need. I know it is what we want. In short, we would like to be assured of customers and they would like to be assured of a reliable supply of coal for power generation.

To accomplish these long-term arrangements on a timely basis will require us to find a fast-track system for the permit process for new coal mines. The present process takes too long.

Mr. Chairman, it is useful to note that the Commonwealth of Pennsylvania over a year ago earmarked $26.5 million to the Consolidated Rail Corporation to modernize and increase the capacity of our Greenwich Export Coal Pier 124 from about 3 million tons to 10 million tons per year. Another Delaware River Port facility, Port Richmond, will be rehabilitated by private interests with modern coal facilities eventually able to handle 15 million additional export tons of coal per year.

Last year Conrail acquired 1,550 open top hoppers valued at $60 million to continue the modernization of its fleet. In the previous year Conrail completed taking delivery of 4,000 new 100-ton hopper cars. In addition to the new acquisitions, Conrail has rehabilitated a total of 20,000 hopper cars since April 1, 1976. With the acquired and rehabilitated cars, Conrail now has a fleet of 40,000 hopper cars. Over 64 percent of the cars are new or rehabilitated.

At every stage of activity, we are upgrading our capacity to handle coal destined for export.

Mr. Chairman, I commend you for your sponsorship of S. 1389, the National Port and Navigation Improvement Act of 1981. While this bill, which I am cosponsoring, may provide little direct benefits for the Delaware River Ports because of our particular geological features, we know that Pennsylvania export coal is shipped overseas by a number of ports outside of Pennsylvania just like much Ohio and West Virginia coal goes to Europe via the Philadelphia port.

Several coal producing states, including Pennsylvania, critically need modernization and rehabilitation of the locks and dams of the Ohio River system to speed the delivery of coal to Gulf Coast ports.

These steps, hopefully, will reduce port congestion which, according to the National Coal Association, costs the customers from $15,000 to $20,000 per day of waiting time. Happily, current port expansion plans should eliminate port congestion problems by 1984 or 1985.

Mr. Chairman, I join you in welcoming the representatives of the European Coal Consuming Countries. While I must be at other meetings much of the day, I will be reviewing the notes of testimony. I will be pleased to work with the Chairman, the members of the Subcommittee and the other members of the Coal Caucus in accommodating as many of the recommendations of our friends, our coal customers, as possible.

STATEMENT OF BAUDOUIN LUYCKX, COMMERCIAL DIRECTOR, CARBOMET S.A., AND S.A. BELGIAN BUNKERING AND STEVEDORING CO.

Mr. Luyckx. Mr. Senator, ladies and gentlemen, I wish to thank you for giving me the opportunity to give you a picture of the Belgian energy needs for the present and for the future, and to comment the present and future position of the American exports to Belgium as well as giving you an overlook of the discharge and transportation capacities in our country.

Let us first comment on the situation of coal imports over the past 2 or 3 years. The coking coal imports who represent about 57 percent of the consumption have not been substantially alterated over the past few years. We have seen a gradual reduction of import of German coal and a sudden falldown of Polish coal imports in our country. These reductions have been simultaneous to the slackening of coking coal demand consequent to the economic recession mainly in the steel industry.

The imports out of the United States have been relatively steady over the last few years, and it is anticipated they will remain so.

As for the steam coal, the picture is considerably different. In the past the Belgian energy needs for coal were concentrated on Belgium's own production. Late 1979 Belgium started with the import of American steam coal because of the growing demand consequent to the conversion of several power stations back to coal. The United States was considered as a natural and as the closest supplier of the low volatile needs for the specific power stations.

Unfortunately, the hopes of increased U.S. imports were darkened by the growing demurrage situation consequent to the inefficient and outdated export capacities. Furthermore, the antiquated car top sampling method for analysis discouraged Belgium and European consumers.

These factors combined with a general recession are leading energy producers to abandon gradually the United States at the present time until these problems can be solved. They are now turning their eyes to other countries such as Canada, Australia, and South Africa who are already in a process of increasing their export capacity, and we consequently fear that the United States will come too late with their port improvements to gain a substantial part of the cake.

Senator Specter. May I interrupt? Are you familiar with the procedures which have been instituted for continuous coal sampling at some of the more modern U.S. facilities?

Mr. Luyckx. Yes. There are some ports that have the system or that are trying to implement these, but the situations such as at Baltimore, Newport News, and even Norfolk are still using this same outdated method. New approaches have been put forward, but we are still waiting the specific realization of these programs.

Senator Specter. Has there been any improvement at all in the course of the past several months?

Mr. Luyckx. No, not at this time.

Senator Specter. Do you think that once these facilities are complete with respect to the continuous coal sampling that there will be an improvement in the issue which you have just raised?

Mr. LUYCKX. Yes. I believe that the Europeans will get a little bit more faith in the reliability of the supply. It is a great problem for the customers to try to guess exactly what coal they are going to get.

Senator SPECTER. That is a matter of great concern to us, and the facilities are in the process of being improved so that we will have the continuous coal sampling, and I think it is useful for us to understand your concern and equally useful for you to understand our response because we are aware of it and are seeking to solve that issue with the continuous coal sampling.

Mr. LUYCKX. I think that is a very positive step, just like the port situation improvement is one of another good steps of the Americans. If you will allow me now to come back to Belgian imports over the past few years, and specifically at the present time, we see that for the total energy needs, the United States is by far the largest supplier with about 41 percent followed by South Africa, 26 percent, and Germany, 23 percent. The steam coal imports are largely dominated by South Africa, 36 percent of total consumption, and followed by the United States, 20 percent of the total consumption.

As to the coking coal, the United States is the largest importer with 32 percent, followed by West Germany, 13 percent. We must also emphasize the program of Belgium for nuclear power stations. Three new power stations will come on stream by 1985, and the installed power will be about 5.3 megawatt. This is about 48 percent of nuclear power for total energy.

The other energy needs will be covered 32 percent by coal and 20 percent by oil and gas. Beyond 1985 up to 1990 options have been put forward for a further program of power stations—one nuclear power station of 1,300 megawatt, plus one coal-fired power station of 600 megawatts, eventually divided in two of 300. The same options have to be declared for coke plants which might be constructed nearby the Campine Basin in Ghent or nearby the Port of Zeebrugge. Because of the uncertain political and economical situation, these decisions might very well be postponed, but it is evident that the United States will gain a larger part of the increased capacity.

What can be said about the situation of the Belgian ports and about the transportation systems? The main port is Antwerp and some other facilities are existing at the Port of Ghent and some further developments are planned at the Harbor of Zeebrugge.

The future developments will confirm the predominant role of Antwerp as coal distribution center. This port handled about 3 million tons in 1978. It will handle about 6 million tons this year, and 7.5 million tons in 1982. The port authorities are working for a better accessibility of the river. The present draft is 47.6. Necessary credits are made available so that in the future the river will be accessible to vessels of 50 feet which means 120,000, 125,000 tons deadweight fully laden.

The SGM terminal is the biggest European coal handling terminal with over 4.8 million tons in 1980. This is even more than the total Rotterdam capacity. The terminal has completed the last part of an important investments program which will bring the facility to a practical discharge and handling capacity of 20 million tons.

As to Stocatra, the new project in the Delwaide Dock will reach in the first stage 4 to 5 million tons in 1983, beginning in 1984. The second stage will forecast 6 million tons in 1990. The second Belgian harbor is Ghent where the traffic of 1.4 million tons is mainly under influence of the steel industry Sidmar. Serious studies are now undertaken to develop the new terminal to 3 to 4 million tons per year. This project is dependable of the Terneuzen Lock meaning actually a restriction in the size of the vessels to Panamax types. However, the study of another canal with locks of 125,000 tons deadweight is now underway.

The Port of Zeebrugge is also planning new developments and would be able to accommodate vessels of 125,000 tons in the coming years, but the necessary credits have to be made available, and at the present time this is very doubtful. Belgian port capacity demonstrates that the size of 100,000 to 125,000 tons deadweight seems to be the most suitable type of carrier for the existing loading and unloading facilities. This means that Belgium will not need specifically the increased dredging of U.S. ports to 55 feet.

As a conclusion, I would like to stress some topics that we have to keep in mind for the promotion of the U.S. exports to our country. Let us not forget that when people are coming back to coal, coal should remain competitive and reasonable in price.

We have been talking about the methods of sampling at the loading ports which are going to be improved, and we also see a positive step in the building up of new port capacity similar to those working in Canada, South Africa, and Australia. Simultaneously to the efforts made to increase the export capacities in the United States, we believe that serious efforts have to be undertaken to improve the railway system to these ports. Also there should be a better control of the exaggerated and repeated rail freight increases to balance the almost monopolistic position of the railway companies in the various producing districts.

As regards the increase in port capacity in the world, we must state that with all the projects coming on stream we should say in the United States and Australia, there will be most probably an overcapacity in the medium term. This might, of course, change we believe about to 1990.

Finally, we believe that the United States will be the price leader in the future. Even the South African producers are expressing their concern about this, and they say it will follow most probably the U.S. trend.

I thank you for giving me the opportunity of giving this picture of the Belgian needs, and I thank you very much.

[The prepared statement of Mr. Luyckx follows:]

UNITED STATES SENATE
ENERGY COMMISSION - November 10th 1981.

Paper given by Mr. Jean Stoop and presented by Mr. Baudouin Luyckx.

Messrs Senators,
Ladies and Gentlemen,

It is a great honour to present before this distinguished audience a paper prepared by Mr. Jean Stoop, heading one of the major Belgian and European coaltraders group.

This paper is intended to present you a general picture of the Belgian energy needs for the present and for the future and to comment the present and future position of the American exports to Belgium and Western Europe, as well as an overlook of the discharge and transportation capacities in our country.

Let us comment the situation of coal imports over the past two or three years:

- The coking coal imports who represent about 57 % of the consumption have not been substantially alterated over the past few years, we have seen a gradual reduction of import of German coal and a sudden fall down of Polish coal imports in our country, these reductions have been simultaneous to the slackening of coking coal demand consequent to the economic recession mainly in the steel industry. The import out of the United States have been relatively steady over the last years.

- As for steam coal the picture is considerably different. In the past the Belgian energy needs for solid fuels were concentrated on Belgian's own production, with gradual imports from ECC countries where local production slowed down because of uneconomical mining, leading to the closing of certain mines mainly in the Southern area of the country.

... / ...

Late 1979 Belgium started with the import of american steamcoal because of growing coal demand consequent to the conversion of several power stations to coal. The United States were considered as a natural and as the closest supplier for low volatile needs.

Unfortunately the hopes of increased U.S. imports were darkened by the growing demurrage situation consequent to the inefficient and outdated export/capacities. Furthermore the antiquated car top sampling method for analysis discouraged belgian and european consumers. These factors combined with a general recession are leading electricity producers to abandon gradually the U.S. until these problems can be solved. They are now turning their eyes to other countries as Canada, Australia and South-Africa who are already in a process of increasing their export/capacities and we consequently fear that the U.S. will come too late with their port improvements to gain a substantial part of the cake.

- What about the belgian needs in particular ?

We can divide the needs in 4 principal groups being : coke works, power stations, various industries and households.

The estimated consumption for 1981 are in principal as follows :

Coke works :	local production	3.9 MT
	imports	4.3 MT
	total	8.2 MT
Power stations :	dumps	0.8 MT
	local production	1.7 MT
	imports	4.4 MT
	total	6.9 MT
Households	local production	125.000 T
	imports	1.375.000 T
	total	1.500.000 T

Various industries , being mainly cement works and some sugar refineries

local production	85.000 T
imports	915.000 T
total	1.000.000 T

A fact is that new technology like Fluidised bed combustion will be a promotion to walk over again on a large scale to coal in various other industrial areas. As far as liquefaction and synfuels is concerned, no definite steps have been taken

The prospects for 1982 are about the same with a margin of say minus one or two percent for the four consuming sectors.

In fact an increase of consumption was foreseen but due to the recession in the European Community and in particular in the Belgian steel and manufacturing industries, who are also the main consumers of electricity, a stabilisation or a slight withdrawn is expected for 1982 and onwards.

Insiders and economists believe that the general economical situation would start to improve again arround 1984.

The belgian importers succeeded together with the consumers an important diversification [in the supply of energy generating fuels] ~~to~~ regain~~ing~~ freedom towards the OPEC countries, securing and guaranteeing the delivery of coal based on long term contracts, and also continuing with the important nuclear program.

- The belgian imports are actually as follows (for all sectors):

U.S.A.	41 %
South-Africa	26 %
Germany	23 %
Australia	2 %
Various	18 %

The whole of the consumption of steamcoal for the producing of energy can be devided as follows :

Belgian mines & dumps	36 "
South-Africa	36 "
U.S.A.	20 "
Australia	2 "
U.K.	2 "
Canada	1 "
Various	3 %

The picture for coking coal can be established as follows :

Belgian production	47 %
U.S.A.	32 %
Australia	2 %
Poland	1 %
West-Germany	13
Various	4 %

- What about the belgian coal industry for the present and its prospects ?

Established reserves down to a depth of 1000 meter in belgium are estimated to be arround 600 MT.

On january the 13th, 1975 the Government decided a program concerning the national coalproduction :

The production of coal in the south will be stopped in 1982 mainly due to the fact that these coals are not longer economically recoverable. For a memory it concerns about 150.000 T mainly for the households.

The production capacity of the Campine area was fixed arround 5,5 MT/6MT, for so far that mining would remain in certain financial limits, in fact every ton of coal that is produced actually has to be subsidised by the Government.

- As far as the construction of nuclear powerstations is concerned the program has been temporarily stopped with the achievement of Doel 3 and 4 in the North and Tihange 3 in the south. This means that the total installed nuclear power in 1985 will be equivalent to 5.284 Megawatt.

The repartition of energy will be as follows by 1985 :

48 % covered by nuclear power
32 % covered by coal
20 % covered by oil and gas

Beyond 1985 up to 1990 options have been put forward for a further program of power stations :

one nuclear power station of 1300 Megawatt

plus one coalfired power station of 600 Megawatt or eventually
two coalfired powerstations of 300 Megawatt each

- The same options have to be declared for cokeplants which might be constructed nearby the Campine bassin,in Ghent or near the Port of Zeebrugge. Because of the uncertain political and economical situation, these decisions might very well be postponed for a undefinite period of time.

- What can be said about the situation of the belgian ports and about the transportation systems ?

The main coal port is Antwerp, some facilities are existing at the Port of Ghent and some further developments are planned at the new harbour of Zeebrugge.

With the forecast of growth of imports in Europe, not only for local consumption, but also for transhipment to the natural hinterland (being Germany, Holland, France, Switserland) Antwerp is an important distribution coal center into the European community.

Some figures are interesting to remind :

- 80.000 people are directly or indirectly employed in the harbour trade
- 100 million people are living in a zone of 350 km surrounding Antwerp
- the 300 km railwaynet in the harbour is perfectly connected with internationa railway traffic, more than 100 trains a day are transporting all sorts of goods to surrounding countries of the community.
- large waterways are providing easy traffic for barges to the Hinterland (Rhine, Mosel and others

Let us not forget that the advantages of Antwerp were already recognized and highly appreciated by the Allied Forces during World War II .

The future developments will confirm the predominant role of Antwerp as coal distribution center. In 1978, 3.000.000 T of coal were handled in Antwerp - in 1979, 4.075.000 Tons and in 1980 more than 5.800.000 tons have been handled.
The estimation for 1981 are arround 6.200.000 tons and 7/7.500.000 would be reached for 1982.

The Port Authorities are working for a better accessibility of the River Schelde. The present draft is of 47'6". The necessary credits are made available so that in the future, the river will be accessible for vessels ranging 50 feet, which means vessels of 120 to 130.000 tons DWT fully laden.

The S.G.M. terminal is the biggest european coal handling terminal with over 4.800.000 tons in 1980. The terminal has completed the last part of an important investments program and these facilities have now a theoretical discharge capacity of 26.000.000 tons and a practical discharging capacity of 20.000.000 T.

As to Stocatra, the new project in the Delwaide Dock will reach in a first stage 4.000.000 /5.000.000 T for late 1983, beginning 1984. The second stage with a forecast of 6.000.000 tons for 1990.

It is to be emphasised that Antwerp's reputation has been build upon the fact that the unloading capacity is high because of a seven days a week performance and social stability.

The second belgian harbour is Ghent where the traffic of 1.400.000 tons is mainly under influence of the steel industry Sidmar. Serious studies are now undertaken to develop a new terminal able to carry 3 to 4.000.000 tons of coal per year. This project is dependable of the Terneuzen lock meaning actually a restriction in the size of the vessels to Panamax types. However, the study of another canal with locks of 125.000 tons DWT is now under way.

The Port of Zeebrugge is also planning new developments and would be able to accomodate vessels of 125.000 tons in the coming years, if the necessary credits are made available, which is doubtful.

A look arround in the coal consuming countries demonstrates that the size of 100 up to 125.000 tons DWT seems to be the most suitable type of carrier for the existing loading and unloading facilities throughout the world. This size generally speaking gives also a better and more profitable turn-over both for the seller and the buyer.

- As a conclusion we would like to stress some topics that have to be kept in mind for the promotion of U.S. exports to our country :

Let us not forget that when people are coming back to coal, coal should remain competitive and reasonable in price.

Methods of sampling at the loadingports should be improved and modified because the actual way of topsampling is not representative at all of the exact quality shipped.

We see a positive step in the building-up new port facilities similar to those already working in other countries like Canada, South-Africa and Australia.

It should however be of a great interest that some kind of rationalisation should be organised by your Government in order to maximalise the investments that are undertaken.

Simultaneously to the efforts made to increase the export capacities some serious efforts have to be undertaken to improve the railway systems to these ports. Also there should be a better control of the exagerated and repeated railfreight increases to balance the almost monopolistic position of the railway companies in the various producing districts.

Apart from the abovementioned report, we would draw your attention to the fact that at the present moment, the situation seems to be on the hedge and that we state on the world markets a kind of temporary saturation.

For the medium term we must state that countries like France will realize for a large part the nuclear program of the previous government.
Also as regards the Electricity of France, they will reduce their consumption in 1983/1984 below 12 MT and in 1988 less than 6 MT.
On the contrary in Italy and Germany, there will be a serious increase, but we must also consider that in Germany the production will increase.

West-Germany is actually exporting important tonnages to East-Germany, because of the lack of Polish coal.

As regards the increasing port capacity in the world, we must state that Richards Bay will increase in the second phase with 7 MT in 1983 and the USA port increase capacity is estimated to be in the range of 20/30 MT by late 1983, early 1984, ~~or~~ a total of 27/37 MT. (We are not mentioning the new Australian developments, this country being orientated to the Far East) and we must question ourselves to see if the consumption will increase in the same way.

We sincerely think that their will be a large over-capacity in the world on the medium term. This might change on the long term.

Finally we believe that the USA will be the price leader in future and Mr. Jean Stoop, who is presently in South Africa, thinks that the South African coal producers will follow the USA trend.

Messrs Senators, Ladies and Gentlemen, we have come to the end of this description, we realize that we have covered only tendencies and trends of the Belgian coal and energy situation and we would be very happy to answer any questions from the audience.

Thank you,

Jean Stoop.

Senator SPECTER. With respect to the future of Belgian's energy needs, what consideration is being given if any to the using more of coal from the resources which are available from the United States and other places as contrasted with the Mideast oil where the supplies are so much less certain?

Mr. LUYCKX. Well, I think that the coal at present which accounts for about 25 percent of the capacity, will be out by 1985 to 32 percent, and this will be detrimental to oil and gas.

Senator SPECTER. Do you have to make some specific adjustments in your consumption patterns that shift from oil to coal, to use more coal?

Mr. LUYCKX. No. All the conversions have been made so far. The only thing that will happen is the new building of power stations in about 1986–87, this depends on when the decision is going to be made—this is a 600 megawatt capacity powerplant.

Senator SPECTER. You see an increase from 25 to 30 percent of your energy needs being fulfilled by coal?

Mr. LUYCKX. By coal; yes.

Senator SPECTER. Is it possible to increase that percentage even higher for coal?

Mr. LUYCKX. No; because Belgium has very high nuclear power stations program. As I stated, we are going to reach close to 50 percent in nuclear, and we believe that the coal will slightly increase up to this 32 percent, detrimental to oil.

Senator SPECTER. Thirty-two percent for coal, 50 percent for nuclear, and 18 percent then for oil?

Mr. LUYCKX. Yes, 20-percent for oil; that is 48 percent exactly. It is close to 50.

Senator SPECTER. Are you interested in reducing your dependency on oil below the 20-percent mark?

Mr. LUYCKX. No. Up to now this has not been put forward. There is a big white book published by the Government, and it is now being discussed. We hope that we will have a new government soon, and that it will be able to discuss this, but the general trend is to remain to these figures of 48.

Senator SPECTER. Do you see any shift in your policy to energy sources with the new government?

Mr. LUYCKX. No, there will be no change from the new government. The main source is South Africa followed by the United States and I believe that this trend will continue. We even believe that the South Africans are going to take a more substantial part in the next 2, 3 years until the United States has a better port capacity system.

Senator SPECTER. With respect to your oil imports, what is the source of those?

Mr. LUYCKX. The main imports are from Saudi Arabia. It is more than half from Saudi Arabia, and the other part is from Iran, and we have also a little bit from Africa.

Senator SPECTER. Isn't the coal cheaper than the oil on a comparative basis?

Mr. LUYCKX. Yes.

Senator SPECTER. Why wouldn't you be interested in reducing your dependency on oil?

Mr. Luyckx. A lot of power stations have been built to burn specifically oil, and it would cost too much to transform them back to coal again, but the program for new power stations will be to have power stations able to burn either gas fuel or coal, but the intention is to use them for coal.

Senator Specter. How much of the coal do you receive from American sources contrasted with other sources?

Mr. Luyckx. I'm sorry. I didn't understand the question.

Senator Specter. How much of coal did you receive from the United States as the source of supply contrasted with other sources of supply?

Mr. Luyckx. The American imports are about I will say 40 percent below South African and other imports.

Senator Specter. Forty percent?

Mr. Luyckx. That means that the South African imports are about 36 percent. The American imports for steam are only 20.

Senator Specter. I am delighted to return this gavel to Senator Warner.

Senator Warner [presiding]. We are going to ask that the remaining witnesses come forward. There is a vote set in the Senate very shortly, and there is a special meeting of the Senate Energy Committee likewise to occur here very shortly, so if the remaining three witnesses would come up as a panel, we will have to conclude the hearing—Willem G. Daniels, director of Association Technique de L'Importation, and we have Mr. Dominguez, and Mr. Renier. Do we have these witnesses present?

Gentlemen, if you will kindly forgive the chairman and the committee for not having the amount of time deserving of what you could provide this morning, we will accept your statements in their entirety for the record.

I wonder if you might each take a few minutes to summarize the basic points that you wish to stress.

Mr. Daniels, could you lead off?

Mr. Daniels. Yes. Thank you, Mr. Chairman.

STATEMENT OF WILLEM G. DANIELS, DIRECTOR, NORTH AMERICA DELEGATION, ASSOCIATION TECHNIQUE DE L'IMPORTATION

Mr. Daniels. We would like to first give you briefly the coal scene in France regarding the need in 1990. As regards coal, we have been burning 46 million tons in 1973; 51 million in 1980; and the forecast for 1990 is 53 million to 60 million, which means that we have a rather stable consumption, but with an emphasis on an increase which is stimulated by the new government.

As regards the U.S.A., we have been buying 7 million tons last year. It is going to be 10 million tons this year, and the forecast for next year is 9 million tons. It is a slight decrease.

I would like to make emphasis on two points. First, quality—a concerted effort, even a great effort has to be made by a number of sellers in connection with contract specifications. Numerous bad deliveries have been made this year and have tarnished the reputation of your industry at a time when reliable producers and exporters are doing their utmost in order to supply the best possible product. I am speaking of our own bad experiences, including the hot coal, and we are looking forward to the recommendations of the NCA and ASDM Committees which have been set up, and of which technique is a part. I think it is very important for the future of your coal export especially.

Also regarding the railroad rates, we are concerned by the consequences of the Staggers Act, and I fully support Mr. Allen's declaration on this specific point.

Regarding port capacity, we would like the promoters of the future ports to be very specific on nominal capacity and actual through-put capacity. There is a distinct difference, and a good port should be working at 70 percent of actual theoretical capacity.

Various systems have been introduced by the railway companies for the alleviation of congestion, and we are happy to acknowledge that compared with the first half of this year the situation has enormously improved. We have no longer vessels waiting 3, 4 months and even 6 months, but I must immediately add that these systems are very difficult to tolerate for us as buyers at the charges of the vessels, and again reverting to the port of the future, we really need deep water ports because we are currently using large vessels in France. France has four ships of 135,000 tons on order. They are going to be delivered this year, and next year. This shows that we have a great confidence and great need of larger ships, and they should be able to be floated in your ports since the French ports are capable of receiving them.

[The prepared statement of Mr. Daniels follows:]

ASSOCIATION TECHNIQUE DE L'IMPORTATION CHARBONNIERE (A.T.I.C.), Paris

STATEMENT OF

WILLEM G. DANIELS

DIRECTOR NORTH AMERICAN DELEGATION

ASSOCIATION TECHNIQUE DE L'IMPORTATION CHARBONNIERE, PARIS

on America's role in the world coal export export market

before

the Subcommittee on Energy and Mineral Resources

of the United States Senate Energy and Natural Resources Committee

Washington, November 10, 1981

My name is Willem DANIELS. I am the Director of the North American Delegation of the ASSOCIATION TECHNIQUE DE L'IMPORTATION CHARBONNIERE, Paris, also known as A.T.I.C.

You had kindly invited Mr. Claude MANDRAY, our General Manager of Paris, to testify before your Subcommittee. Not being in a position to be present today in person in Washington he has requested me to convey the testimony of our Association which is an agency operating under the supervision of the French Government and which is by law entrusted with the purchasing of all the coals and coke imported into France. Our functions are therefore strictly related to purchases outside France, the domestic production being mined and sold in France by the state group CHARBONNAGES DE FRANCE.

1. FOCUS ON FRANCE'S CURRENT AND ANTICIPATED COAL NEEDS

I think the scene should first be set regarding the energy prospects for France in 1990. The table enclosed is showing the plans and the options of the new Government.

As regards the oil equivalent tonnages for coal they have to be translated as follows in tons of coal.

1973 : 46 MT

1980 : 51 MT

1990 : a) previous plan April 1980 case A : 50 MT

case B : 42 MT

b) new plan October 1981 53/60 MT

I wish to underline the will of todays Government to increase the consumption of coal.

For 1982 I am in a position to give you the following projection based on provisional figures which would require confirmation in the coming weeks :

Thermal (power generation)	22 MT
Steel industry	15
General industry (including cement mills)	5
Households	4
Various	1
	47 MT

2. THE STATE OF FRANCE'S COAL INDUSTRY

After a maximum of 60 MT in 1958, the national production has rapidly fallen to 29 MT in 1973, particularly due to the competition of the oil products. Since 1974 the decrease of the production has continued, but at a much slower pace. For 1981 the production is estimated at about 20 MT.

According to the plans of the former Government a further decrease of the production of the national collieries had been planned taking into account the lower prices of the imported coals. For 1990 the projected production was set at 10/15 MT.

The new Government has decided to reverse the trend and a target production of 30 MT by 1990 has been set by the Prime Minister. However it is admitted that such a goal will be difficult to reach.

Right now new geological surveys are being carried out and CHARBONNAGES DE FRANCE which I have already mentioned, are studying new investments with the Ministry of Energy based on the economics set by the Government.

3. GOVERNMENTAL POLICIES ENCOURAGING THE CONTINUED AND INCREASED USE OF COAL

Research and development regarding new ways of utilizing coal are being sponsored : fluidized bed combustion, fuel-coal mix, methanol.

Experiments of in situ gaseification are currently being made. Furthermore several projects of industrial gaseification are under consideration. In this respect it is interesting to note that GAZ DE FRANCE has just announced the construction of a pilot plant at Le Havre for which 1,000 tons of coal per day will be required.

In 1990 about 70 % of the electricity will be produced from nuclear reactors and the coal-fired power plants will be used for peak-hours consumption only.

In these circumstances the development of coal use should mainly be encouraged in the industry. Substituting coal to oil products for industrial boilers and collective heating could be an important move as long as, of course, the price differential between these two forms of energy remains important.

The objective set in 1980 was to increase the consumption in the industry (steel mills excluded) from 3 MT in 1979 to 16 MT in 1990 plus about 2 MT for collective heating.

In order to facilitate the conversions the previous Government had decided to grant premiums amounting to 25 % of the extra cost involved for coal-fired equipment compared to the lower cost of oil-fired equipment. Low interest loans have also been granted.

The new Government has not taken any new measures but is determined to act in the same manner, or even to increase the incitations, the use of coal instead of oil being assimilated to an energy saving.

4. THE CONDITION OF FRANCE'S COAL TRANSPORTATION NETWORK AND SEA PORTS

4.1. NETWORKS

The country operates dense railroad and river networks on which in 1980 a total 38 MT were carried. Such operations with trains of maximum 2,500 tons and barge convoys of 5,000 tons on the Seine river and 12 to 15,000 tons on the Rhine cannot compare with similar operations in the U.S.A. But taking into account the relatively short distances these 2 types of operations are extremely efficient and reliable.

4.2. PORTS

As already stated by me on numerous occasions this year in the U.S.A. France has and is going to have a large number of excellent deep-water ports capable of receiving today's and tomorrow's large coal carriers of 140,000 tons deadweight or more. I know there has been a great deal of scepticism in this country about the port situation in France and I therefore feel the need of repeating in detail some indications for each individual case :

../..

Dunkirk	:	current	110,000 tdw
		1983	200,000 tdw
Le Havre	:	current	140,000 tdw
		1983/84	180,000 tdw
Montoir (Nantes)	:	1982	120,000 tdw
Fos (Marseilles)	:	current	160,000 tdw

And many of the existing facilities are not recent ones : over the last years the largest coal carriers of the world fleet have always found a safe berth in at least 3 French ports.

5. POTENTIAL COAL SUPPLIERS

From one decade to another, from one year to the other, the origins and tonnages of imported coals of course fluctuate.

For 1982 A.T.I.C. foresees the following breakdown for a total of 25 MT :

West Germany	6,000
Belgium/Netherlands	300
Great Britain	1,700
Poland	500
U.S.A.	9,000
South Africa	5,300
Australia	2,200
	25,000

You will note that about 35 % of next year's purchases should be coming from the U.S.A.

We feel confident that this major contribution of your country will be repeated in the subsequent years.

However competition exists, you know it and with the free and private enterprise state of mind honored by you you appreciate its advantages and disadvantages.

The competition is already there and will be coming from Canada, South Africa, Australia, Colombia with their plans for new or considerably stepped up productions to be shipped from excellent deep-water ports, which already exist or are under construction/ expansion.

I shall revert later on with our views regarding the potential of the U.S. coal industry.

6. POSSIBLE FOREIGN INVESTMENTS TO INSURE COAL SUPPLIES

The new Government has not yet defined its policy regarding the French investments abroad : importance of capital expenditure and tonnage, role of the various French investors.

An introductory survey prepared for the important energy debate which took place in October last recommended that the French operators/investors should control abroad production capacities in line with the total import needs, which does not mean of course that the total tonnage to be imported should originate from controlled productions. This would be impossible to match it only be for quality requirements. However the recommendations to the French investors as regards the conditions of investments have not yet been defined , the same applies to the level of the contemplated participations.

No doubt that these companies would by preference sell their foreign production to France but there is little doubt that they would look for markets outside France. In parallel France would still require coals from the various American and world producers and exporters under long-term and spot contracts.

7. SUGGESTIONS

We would like at this stage to express a number of strong wishes in order to continue having the American coal industry as an important supplier of metallurgical and thermal coals to France.

7.1. IN GENERAL

Security of supplies

We have noted with great interest the solemn assurances given by the Department of Commerce since July last in respect of the sanctity of contracts. This is what a foreign buyer needs to hear.

Quality

A certain effort, even a great effort has to be made by a number of sellers in connection with a full respect of contract specifications. A certain number of bad deliveries made this year have tarnished the reputation of your industry at a time when reliable producers and exporters are doing their utmost in order to supply the best possible product.

Price

Competitive and stable delivered (or C and F) prices are needed, which means competitive at mine prices, competitive and stable railroad and barge rates, competitive and efficient ports, lowest possible sea rates of freight.

7.2. MINE PRICES

We have a great confidence in the efficiency of the American coal industry but in the future we need to deal both with large producers and with small mines and in this latter case usually through brokers.

7.3. RAILROAD AND BARGE RATES

These require to be stable and competitive. And as far as the railroads are involved we would like to repeat our concern regarding the Staggers Act and its consequences for the export rates and the survival of the small mines.

7.4. PORTS

Coal terminals should be in sufficient number and the new ones should as much as possible remain open to any party showing an interest in throughput capacity and contracts.

As for the incremental capacity presently under construction or planned for the years 1982/84 and which is estimated at 92 million tons per year it is in our considered opinion inaccurate to state that this capacity will in its full extent be available for exports. As a matter of fact it is common knowledge that a terminal should only be used at 60/70 % of its nominal capacity in order to avoid waiting time to vessels. On the other hand, the existing terminals are utilized at 90 or even 98 %.

Therefore in order to ascertain the real future throughput capacity of the ports and in normal operating conditions, we are of the definite opinion that 70 % of the nominal capacities should be taken into consideration and not 100 %.

We are looking forward to better ports and deep-water ports. The present various systems which have been introduced by the major railway companies have no doubt alleviated the port congestion and we are happy to acknowledge that compared with the first half of this year the situation has enormously improved. But one must immediatly add that these systems are very difficult to implement, for us the buyers and the charterers of the vessels.

Regarding the deep-water ports, we really need them and we are expecting decisions from the Federal Government, the States and Port Authorities.

As the number 1 world charterer of coal carriers (our seaborne transports aggregated 25 MT in 1980) we have been the leading charterers of large vessels with cargo carrying capacities as high as 150,000 tons. These vessels have been chartered at very competitive rates enabling us to have competitive delivered prices.

In order to illustrate the advantages deriving from large vessels you will find in my written statement a few figures indicating the actual cost per ton of coal carried, based on running costs, capital investment, port expenses and bunkers.

These figures should therefore not be read in conjunction with today's freight market.

Dollars per ton of coal carried

	Hampton Roads/ Le Havre	Roberts Bank/ Le Havre
Panamax (70,000 tons)	12.70	29.50 (x)
120,000 tons	9.40	23.80
145,000 tons	8.00	20.00

(x) through Panama 58,000 tons only

As already stated a few minutes ago, other coal exporting countries today have or are going to have more and better deep-water ports. This means increased competition for your coal industry. And we do not see a better way to beat that competition than to have similar terminal and port facilities.

-oOo-

This is the message A.T.I.C. wanted to deliver to your Subcommittee. You need the French market, we need the American coal industry. Please build a better future. Thank you.

FRANCE

ENERGY PROSPECTS - 1990

	1973		1980		Previous plan - April 1980				New plan October 1981	
					1990 case A		1990 case B		1990	
	Mtoe	%	Mtoe	%	Mtoe	%	Mtoe	%	Mtoe	%
Coal	30,5	17,2	34,-	17,7	33,-	14,-	28,-	11,5	35/40	15/17
Oil	117,2	66,-	102,1	53,2	68,-	28,-	80,-	33,-	70/75	30/32
Natural gas	15,-	8,4	23,6	12,3	42,-	17,-	37,-	15,5	31/40	13/17
Nuclear	3,-	1,7	12,9	6,7	73,-	30,-	73,-	30,-	60/66	26/28
Hydro	10,-	5,6	16,-	8,3	14,-	6,-	14,-	6,-	14/15	6/6,5
New energies	2,-	1,1	3,2	1,7	12,-	5,-	10,-	4,-	10/14	4/6
TOTAL	177,7	100,-	191,8	100,-	242,-	100,-	242,-	100,-	232	100

A.T.I.C. - IMPORTS FROM THE U.S.A.

YEAR	TONNAGE	YEAR	TONNAGE
1945	2,500,000	1966	1,700,000
1946	6,000,000	1967	2,100,000
1947	13,500,000	1968	1,600,000
1948	9,000,000	1969	2,100,000
1949	4,600,000	1970	3,300,000
1950	0,040,000	1971	2,800,000
1951	4,600,000	1972	1,600,000
1952	3,200,000	1973	1,800,000
1953	0,300,000	1974	2,550,000
1954	0,055,000	1975	3,600,000
1955	0,800,000	1976	3,100,000
1956	6,800,000	1977	1,900,000
1957	7,440,000	1978	1,500,000
1958	3,000,000	1979	3,500,000
1959	1,020,000	1980	7,300,000
1960	0,700,000	1981	10,000,000 (estimation)
1961	0,600,000		
1962	0,800,000		
1963	2,500,000		
1964	2,100,000		
1965	2,000,000		

Senator **Warner**. We thank you very much. We welcome to the hearing my colleagues from Wyoming and Alaska.

We will now hear on behalf of Spain from Dr. Dominguez.

STATEMENT OF DR. GERMAN DOMINGUEZ, INDUSTRY AND ENERGY ATTACHÉ, EMBASSY OF SPAIN

Dr. **Dominguez**. Mr. Chairman, ladies and gentlemen, I appreciate the opportunity of appearing before you today to present this information.

Senator **Warner**. Would you bring the microphone slightly closer?

Dr. **Dominguez**. Since my written statement has been accepted for the record, I will summarize it, and I will pay attention to the following points.

No. 1, Spain needs steam coal. No. 2, Spain needs imported steam coal. No. 3, Spain is taking the required steps to import and handle huge amounts of steam coal.

As a final point, let me anticipate that Spain expects that the foreign companies willing to secure for themselves as buyers the Spanish of the steam coal will take the necessary steps, too.

Because of the conditions prevailing at the time when Spanish economic development started, oil became and still is the backbone of power supply capacity. Spain has consumed the equivalent of 65.5 million tons of oil as primary energy in 1980. Oil's share was 64.7 percent. This is too much for our economy and too much for our energy security.

Among the guidelines contained in the national energy plan approved in 1979, and among the specific actions embodied in this program designed for its implementation, switching from oil to coal in currently existing plants, building coal-fired plants, and increasing the use of energy sources other than oil such as nuclear energy, play the most important role. This way it is projected that coal's share of primary energy supply will go up to 24.6 percent in 1985 from 16 percent in 1978. This means that Spain will use 31.3 million tons of coal equivalent in 1985, 35 percent increase over current consumption. Then Spain needs lots of steam coal.

Incentives contained in the current Spanish coal production plan support domestic coal mining, and 1980 output was actually higher than projected. However, output are mostly made of poor quality coal and are not enough to meet growing demand. The imports of steam coal that were not significant just 3 years ago have increased substantially this year and will increase in the next years. About 17 million metric tons of steam coal will be imported by Spain in 1985 to meet the needs of electric power generation and of industry; 40 percent more will be required in 1987, 1990. To handle these huge amounts of coal, port facilities will be enlarged, and up to 3.5 million in deadweight tons of new vessels in the size range of 100,000 to 125,000 to 150,000 tons will be built to reduce the effect of sea freight on the cost of coal to end users through economies of scale.

Also agencies of government and private have been established to look for reliable supplies under long-term contracts, and through joint ventures and equity participations abroad.

This ends my oral statement. Thank you, Mr. Chairman.
[The prepared statement of Dr. Dominguez follows:]

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THE ROLE OF IMPORTED STEAM COAL IN SPAIN

Statement presented by

German Dominguez, Industry and Energy Attaché

Embassy of Spain

Before the Subcommittee on Energy and Mineral Resources

of the United States Senate Energy and Natural Resources Committee

Washington, D.C., November 10, 1981

Mr. Chairman and members of the Subcommittee, I am German Dominguez, Industry and Energy Attaché in the Embassy of Spain to the United States. I appreciate this opportunity of appearing before you today, to present the more relevant aspects of current Spanish Government policy to achieve a long-term steady and reliable supply of imported steam coal.

1. THE SPANISH ENERGY PROBLEM

Spain is now in the process of building-up a parliamentary and democratic political system, a task that would have been much easier within a framework of economic prosperity; but the effort of stabilizing our democratic system comes along with the need of readjusting our economy in the midst of a historical economic crisis that affects all the nations of the world. One of the most serious challenges we have to meet is how to decrease our dependence on imported oil without seriously impairing the wealth and prosperity of our country. Some figures will be helpful in understanding the present situation of Spain from the energy supply and demand viewpoint.

Spain, with a population of 37 million inhabitants and an enery consumption of 78 million BTU per person per year, is very far from self-sufficiency because of the very important role played by oil, as the data in the following table point out; domestic wells supply only 3.5 per cent of oil demand and, although Spain exports some refined products, our oil trade balance showed a deficit of 11 billion dollars in 1980, about 6 per cent of our gross industrial product.

Primary Energy Consumption in Spain in 1980

	Quads	M. TOE	Percentage
Hydropower	0.27	6,804	10.4
Nuclear	0.04	1,079	1.6
Natural Gas	0.07	1,758	2.7
Coal	0.54	13,534	20.6
Oil	1.68	42,376	64.7
	2.60	65,551	100.0

In Spain, just like in most countries, coal was the major industrial development component in the 50s, but the increase in coal use stopped at the end of that decade. At that time, the planners of the fast economic development process to be started in the 60s realized that it would be easier to meet the ensuing increase in energy demand with at the time cheap and plentiful foreign oil, than with domestic coal. Consequently, coal's share in primary energy supply came down to 17.3 per cent in 1973 and to 16 per cent in 1978 from 74 per cent in 1950, even though total energy production more than doubled during that period. Meanwhile, oil became the backbone of Spanish power generation capacity and its share jumped up to 66.7 per cent in 1973 and to 64.8 per cent in 1978 from less than 10 per cent in 1950. Because of the specific circumstances of the Spanish economic growth process, the switching from oil to coal was more drastic there than in other European countries and, therefore, there is no other country in Europe -except Italy- as dependent on oil as Spain is.

The energy issue that Spain, like other nations, is addressing, is how to switch from oil to less expensive and more reliable energy sources as soon as feasible, simultaneously meeting an increasing demand.

Towards this double goal, the current Spanish National Energy Plan contains guidelines to:

- Decrease oil's share to less than 50 per cent of the total primary energy supplied by 1987. The latest projections show that no oil will be then burned to generate electric power.
- Use energy more efficiently
- Decrease Spanish dependence on foreign energy supplies by enhancing exploration of domestic fossil and nuclear fuel resources and increasing production
- Diversify supply sources to decrease the effect of political troubles abroad, and to achieve a more balanced energy supply
- Estimulate the development of new and renewable sources of energy.

These guidelines have been implemented in a set of sectorial programs dealing with:

- Completion of nuclear power plants now under construction of previously planned
- Development of small hydropower plants at all available sites

- Oil refineries conversion to enhance light products output
- Search for new domestic sources of oil and gas
- Increase of domestic coal production
- Conversion to coal from oil in certain industries
- Fast construction of coal-fired power plants and switching to coal in as many current oil-fired plants as possible.

This way, it is expected that of the total 3.7 quads to be required in 1985, coal will supply 23 per cent, oil 49 per cent, nuclear 11 per cent, hydro 10 per cent, and gas 7 per cent.

2. STEAM COAL NEEDS

The above indicated structure of primary energy sources calls for an extensive use of steam coal; however, short, medium and long-range projections of the amounts needed depend on the following factors: reliability of oil supplies, changes of the time required to put nuclear power plants in service, annual hydro-electric production, the country's energy needs, and the share of the market that coal can take in accordance with its price as compared with the price of oil.

Spain's future steam coal demand will basically come from three sectors: electricity production, industry, and residential/commercial.

a) The electricity sector: the current thermal power plant construction program is aimed at the addition of 6,862 MW during the 1980-1990 period, as well as the conversion from oil to coal of 2,141 MW currently installed.

Taking into account the installed capacity of coal-fired power plants at then end of 1980 (about 6,500 MW) and the new plants to be built, coal would be used to generate 7,300 MW in 1983, 11,800 MW in 1985, and 12,300 MW in 1987.

b) The industry sector, which includes an ongoing program for reconversion of the cement industry, will use about 2.7 million metric tons of coal from 1982 on.

Other studies are underway regarding the reconversion of the sugar and brick industries, which would use about 1 million metric tons per year.

c) The residential/commercial sector: homes and non-residential, non-industrial users consumed 1.3 million metric tons of coal in 1980, and they are expected to use increasing amounts in the future, in accordance with coal competitiveness and the impact of environmental protection regulations.

3. DEMAND OF IMPORTED STEAM COAL

The downward coal production trend of the 60s was halted in 1974 and a slight output increase occurred in 1975. Incentives contained in the current Spanish Coal Production Plan, along with increasing oil prices, spurred production in successive years so effectively that output in 1980 was higher than foreseen in the 1979 National Energy Plan. However, lignite accounts for most of the increase since 1977.

Coal Production in Spain

Year	Output Million m.tons	Year	Output Million m.tons
1966	15.5	1977	17.9
1970	13.5	1978	19.9
1974	13.5	1979	22.7
1975	14.2	1980	28.6
1976	14.8	1981[a]	33.5
1977	17.9	1985[b]	38.2
		1987[b]	40.0

a : Estimated
b : Projected

The main use of domestic coal is for electricity generation: 73 per cent; the share of steel industry and other related uses is 21 per cent, and the remaining 6 per cent goes to other end-users. The present degree of self-sufficiency is:

Power generation	98 per cent
Steel	34 per cent
Other uses	100 per cent

The projected output increase, however, is not enough to supply the expected demand growth; therefore, imports of steam coal will step-up substantially, although the exact amount to be imported each year will depend on the evolution of domestic demand and production; so far, only the electricity production and cement manufacturing sectors have been considered in the assessment of imported coal needs because it is assumed that domestic production will be sufficient to meet the demand from sectors other than steel and cement production, and electricity generation.

In the electricity generation sector, imported coal will either supply power plants that are being built for burning it, or will compensate for deficiencies in quality or quantity in plants burning domestic coal.

On the other hand, about 70 per cent of existing cement manufacturing plants will switch from oil to imported coal because of their location; other plants will burn coal from mines in their area.

A total of about 10.6 million tce of steam coal will be imported in 1985 and distributed among the main consuming geographical areas as follows:

Andalusia: 42 per cent
Catalonia and Aragon: 20 per cent
N W (Galicia, Asturias, Leon and Palentia): 32 per cent

The proportion will change slightly in 1987: 40, 25 and 25, with a total consumption of about 13-14 million tce.

4. COAL IMPORTS POLICY

4.1. Objectives and directives

The strategic role that imported coal will play in the Spanish economy in the forthcoming years demands a balance of many considerations; not only are the interested parties taking into account the quality, quantity and price of the coal offered by foreign suppliers, but also the prospects for stability and relisbility of supply and pricing policies.

On the other hand, appropriate actions are being taken with regards to maritime transportation and domestic port capacity.

Further on, the concerned parties in Spain have felt the need for domestic agencies capable enough to manage and handle the huge and fast-growing amounts of imported steam coal within a free-enterprise framework.

4.2 Securing long-term supplies

If the criteria for diversified supply sources and contract modalities are considered, a reasonable objective for 1990 could be:

- Approximately 40 per cent of imported coal should come from mines owned by corporations with a partnership of Spanish companies, linked to long-term supply contracts for coal in amounts exceeding Spanish participation, whenever possible.

- 40 per cent more should come through long-term contracts, some of which could be linked to the above mentioned participations.

- The remaining 20 per cent of the market would be available for short-term and spot purchases, to cushion against short-period demand fluctuations, or for financial-industrial long-term agreements payable with coal supplies.

In general, the long-term success of any commercial agreement must be based on mutual confidence. Spanish steam coal purchasers recognize that producers need a guarantee on the sale of their commodities at prices allowing a reasonable profit, but Spanish end-users need a long-term guaranteed supply and price stability.

4.3 Ocean Transportation

Spanish coal purchases will usually be made on an F.O.B. basis; exporters will take care of freight management by using Spanish or foreign flag ships under free-market condition.

In order to reduce shipping costs to a minimum, 125,000-150,000 DWT vessels are needed up to a total of 3.5 million DWT in 1987, to handle the 17 million metric tons of coal that will be imported.

4.4 Ports and Facilities

To receive the coal to be imported since 1985, new terminals have to be built in Spain for fundamental reasons:

- Current capacity of Spanish ports would not allow the handling of more than 4.5 million metric tons of imported steam coal per year.
- The agreements with producing countries under relatively economic conditions imply the use of ships of 125,000-150,000 DWT, and existing Spanish ports are not deep enough.

Terminals will be built at the following locations, at least:

- Algeciras: to receive ships of more than 150,000 DWT; it will handle more than 10 million metric tons per year. A storage area will also be built.

- Gijon: The Town Council is financing the construction of a new terminal with dredging for ships of 150,000 DWT. Unloading equipment will be installed to handle more than 12 million metric tons, 5 million of which will be steam coal.

- Carboneras: A port to receive ships of 60,000 DWT will be built, with an unloading capacity of almost 3 million metric tons per year.

The investments required for the construction of these installations are estimated in 21.000 million 1980-Pesetas. The facilities are expected to start operations in 1984.

5. SOURCES OF COAL IMPORTS

Decisions on the origin of imported coal will depend on the following factors: distance to coal producing countries, their own export capabilities, the availability of new ports both in Spain and abroad, stepwise increase of Spanish demand, as well as supply and price security.

All things considered, the United States and South Africa will be the main suppliers in the next few years, while countries like Australia, Canada, Poland, Colombia and China may become more and more important in the following years.

Up to 1984, we will depend on the United States for 60 to 80 percent of our coal supplies. Then, the percentage will be reduced to 50 to 40 per cent in favour of other countries like Australia (18-19 per cent), Canada (5-13 per cent), South Africa (14-12 per cent), Poland, the Soviet Union, China, and Colombia.

6. SPANISH IMPORTING AGENTS

With the purpose of becoming an efficient agent capable of providing 40 to 50 per cent of the total Spanish steam coal needed in a free-market environment, the National Institute of Industry-INI, a state-owned holding, created CARBOEX (Sociedad Española de Carbon Exterior), which was incorporated on March 20, 1980.

CARBOEX expects to obtain a market for 6.5 million metric tons in 1985, and 11.1 million metric tons in 1990. Its main objectives are:

a) 40 per cent of the imports linked to long-term contracts

b) Minority participation in joint ventures overseas, securing an additional 40 per cent

c) Insuring competitiveness of its supplies through capital investments in the ports of Algeciras, Gijon and Carboneras, and in other smaller terminals.

However, CARBOEX is not the only Spanish corporation dealing with steam coal imports. Previously existing companies involved so far in the supply of foreign metallurgical coal are also active in the new market, and specific interest groups (private utilities, cement manufacturers, coal mining concerns, etc.) have created new corporations to buy steam coal abroad. Further on, some big American producers have branches or representatives in Spain.

7. QUALITY

The following are the specifications of the coal usually needed by the cement manufacturing and electricity sectors:

Characteristics	Cement	Utilities
Moisture	8% max.	8% max.
Ash	15% max.	13% max.
Volatile	18-30%	24% min.
Caloric value	6,200 Kcal/Kgr.Min.	6,500 Kcal/Kgr.Min.
Sulphur	2.5% max.	1.5% max.
Hardgrove	55 min.	55 min.
Ash Fusion	1,350 Gr.C.Max.	1,350 Gr.C.Min.
Size	0-55 mm.	0-55 mm.

Current spanish regulations (Decree 833/1975 of February 6, Annex 4, Section 1.1) establish the following emission standards applicable to thermal power plants burning coal with a maximum of 1.5 percent sulphur and 20 percent ash:

- solid particulate	150 mg/Nm^3
- SO_2	2,400 mg/Nm^3

Senator WARNER. Thank you very much. We will now hear from our last witness, Mr. Renier.

STATEMENT OF PIER LUIGI RENIER, CENTRAL DIRECTOR, COAL PURCHASING, GENOVA, ITALY

Mr. RENIER. Thank you. We sent a written submission where good and bad experiences of our long-lasting relationship are summarized. In a few minutes, I may add only a few comments.

Senator WARNER. If you can just take the mike and put it directly in front of you, we are very anxious to hear.

Mr. RENIER. We buy 10 million tons of coal per year, half of which comes from the United States, for a value in excess of $300 million this year. We buy also 1 million tons from Algeria. Our contracts are all on the long-term basis

Via our contractual commitments and tariffs, we pay for more than 30 years. We have already fully contributed to the development of the mines and infrastructure such as railroads and ports. Despite that, in the 12 months from mid-1980 to mid-1981, we have $200 million adding to that for damages for the congestion of U.S. ports. Now the situation is partially improved, but two points must be guaranteed immediately in our opinion—the priority for long-term customer, which is a worthwhile, normal condition, and the priority for coal from the ports built for such trade.

We are suggesting now two initiatives--the appointment of a committee formed by long experience of coal experts to produce an exhaustive and realistic study like many reports with suggestions of actions to be taken.

Second, in the meantime the American Government as a political gesture should take upon itself the dredging of ports to 51 feet and encourage the construction of a new coal terminal in Hampton Roads devoted to steam coal.

The attitude of the American authorities, mines, and railroads in the last 2 years was very contradictory. They insisted on in order to avoid any risk heavy, long-term engagements before building new mines and infrastructure. In the meantime, quantities were sold in excess of the actual capacity, creating enormous damages to their long-term customers.

The American Government is now suggesting to the European allies to have more confidence in American coal. We think now is the right moment to demonstrate your real good will of breaking the energy cartel. We have had very good relationship for many, many years with all responsible people, and the most important American companies, and they will certainly testify about our seriousness as an importer in the coal market and about our friendly attitude in respect to the United States, but when our people ask our opinion about American coal, we are really embarrassed.

Maybe you have not yet fully realized that the energy cartel is hurting Italy. The energy bill we have to pay is enormous, and so there is economic collapse and people are losing confidence.

To conclude, I read recently in your newspaper the concern of Americans nowadays because of the feeling that their allies in Western Europe seem to be becoming more neutral. The energy crisis certainly is the main reason why they feel like that.

Be a little more courageous. We as one of your best and biggest traditional customers have lost $20 million in 1 year. You hesitate to spend about the same amount of money to do some infrastructure that will be beneficial to the United States, too.

Please go. Do what needs to be done. Thank you again.

[The prepared statement of Mr. Renier follows:]

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UNCLAS SECTION 1 OF 5 GENOA 0892

FOR ROGER SINDELAR, USS SUBCOMMITTEE ENERGY AND MINERAL RESOURCES

E.O. 12065: N/A
TAGS: ENRG, US
SUBJ: SENATE HEARINGS ON COAL EXPORTS

REF: GENOA 0883

FOLLOWING IS NUOVA ITALSIDERS STATEMENT FOR THE SUBCOMMITTEE. PLEASE MAKE A COPY AVAILABLE TO ING. RENIER (REFTEL).

AMERICAS ROLE IN THE WORLD COAL EXPORT MARKET

WRITTEN SUBMISSION FOR THE HEARINGS ORGANIZED BY THE SUBCOMMITTEE ON ENERGY AND MINERAL RESOURCES OF THE UNITED STATES SENATE ENERGY AND NATIONAL RESOURCES COMMITTEE TO BE HELD ON NOVEMBER 10, 1981.

THANK YOU FOR HAVING INVITED US TO THIS HEARING ON COAL.
FIRST OF ALL I WOULD LIKE TO INTRODUCE MY COMPANY TO YOU.
NUOVA ITALSIDER BELONGS TO FINSIDER WHICH IS THE FIRST STEEL

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PRODUCING GROUP IN EUROPE AND ONE OF THE BIGGEST IN THE WORLD. ITALSIDER IS THE SECOND SINGLE WORLDWIDE IMPORTER OF RAW MATERIALS. ITALSIDER PRODUCES ALMOST 12 MILLION TONS OF STEEL PER YEAR. SMALL QUANTITIES ARE ALSO EXPORTED TO THE STATES: IN 1980 ABOUT 20,000 TONS FOR A TOTAL VALUE OF 5 MILLION DLRS WHILE OUR COAL IMPORTS FROM THE U.S. AMOUNTED TO 260 MILLION DLRS IN 1980 AND 320 MILLION DLRS IN 1981. IN PARTICULAR I WOULD LIKE TO MENTION THE RECENT SUPPLY OF ABOUT 250 KM. OF PIPES FOR THE GAS PIPELINE UNDER CONSTRUCTION FROM ALASKA WHICH IS AN EVIDENCE OF THE HIGH TECHNICAL LEVEL REACHED BY ITALSIDER.

THE IRON ORE AND COKING COAL QUANTITIES ITALSIDER EXPECTS TO USE THIS YEAR ARE 17 MILLION TONS AND 10 MILLION TONS RESPECTIVELY. IN 1986 OUR REQUIREMENTS WILL FURTHER INCREASE BY 4 AND 1.5 MILLION TONS/YEAR RESPECTIVELY.

WITH REGARD TO RAW MATERIALS, MAY I MENTION SOME FACTS: WE WERE THE FIRST, MANY YEARS AGO, TO FINALIZE AN IMPORTANT AGREEMENT FOR THE LONG TERM SUPPLY OF IRONORE FROM BRAZIL FOR BLAST FURNACES. BRAZIL NOWADAYS HAS BECOME THE MAIN SOURCE OF SUPPLY TO EUROPE. NOW WE HAVE REPEATED THAT EXPLOIT WHICH WILL OPEN THE AMAZONIAN AREA TO THE WORLD WITH MUTUAL ADVANTAGES. IN 1965 WE WERE THE FIRST EUROPEAN STEEL MAKERS WHO BOUGHT IRON ORE FROM AUSTRALIA (THE FIRST SHIPMENT FROM AUSTRALIA WAS BOUND FOR JAPAN AND THE SECOND ONE FOR ITALSIDER).

IN ADDITION TO LONG TERM SUPPLY AGREEMENTS, BY WHICH WE MEET 100% OF OUR IRON ORE REQUIREMENTS, WE HAVE ALSO INTERESTS IN IRON ORE MINES IN MANY PARTS OF THE WORLD. WE INVEST ALSO IN COKING COAL MINES, ONE OF WHICH IS IN WEST VIRGINIA AND PRODUCE 600/700,000 TONS OF COKING COAL PER YEAR. ALSO IN THE COAL FIELD, FOR INSTANCE, WE WERE THE FIRST TO REACH AN IMPORTANT LONG TERM COKING COAL AGREEMENT WITH POLAND

AND WE WERE THE FIRST IN EUROPE TO RECEIVE SUBSTANTIAL COKING COAL QUANTITIES FROM AUSTRALIA (NOW WE HAVE EVEN PART OWNERSHIP IN AN AUSTRALIAN MINE WHICH WILL START PRODUCTION IN 1983).

LET ME TELL SOMETHING NOW PARTICULARLY ABOUT OUR RELATIONSHIP WITH THE STATES.

ITALSIDER BOUGHT THE FIRST POCAHONTAS CARGO IN 1912 AS A CONSEQUENCE OF THE BRITISH MINERS STRIKE IN THAT YEAR. AT THAT TIME ITALY IMPORTED ALREADY 12 MILLION TONS OC COAL PER YEAR. TWO YEARS AGO ITALY IMPORTED ONLY A LITTLE OR MORE THAN THAT AND NOWADAYS IT IS ESTIMATED ITALY WILL IMPORT ANNUALLY 17 MILLION TONS APPROX.

IN THE POST-WAR PERIOD ITALSIDER BEGAN TO RECEIVE U.S. COKING COAL ON A REGULAR BASIS AND IN 1964 U.S. COKING COAL IMPORTS SUPPLIED VIRTUALLY 100% OF ITALSIDERS REQUIREMENTS, THEN AMOUNTING TO ABOUT 3,5 MILLION TONS.

THE MOST IMPORTANT AGREEMENT FOR AMERICAN COKING COAL WAS EXECUTED IN 1964 FOLLOWING A PROMOTIONAL ACTION CARRIED OUT VERY WELL BYTHE STATES.

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THE U.S. HAD PREPARED A VERY INTERESTING REPORT ENTITLED NATHAN REPORT , IF I REMEMBER WELL, WHICH WAS THE BASIS FOR THE LAUNCHING OF THE COKING COAL EXPORT POLICY.

THE U.S. MINERS WORKING CONDITIONS AND THE DANGER OF AN ENERGY CRISIS (EVEN AT THAT TIME THE EXCESSIVE POWER OF OIL COMPANIES AND THEIR POLICY BASED ONLY ON THE MAXIMUM PROFIT OBTAINABLE GAVE RISE TO CONCERN IN ENERGY IMPORTING COUNTRIES SUCH AS EUROPE IN GENERAL AND ITALY IN PARTICULAR) INDUCED US TO ADOPT A MORE DIVERSIFIED POLICY IN PURCHASING A RAW MATERIAL SO ESSENTIAL TO THE DEVELOPMENT OF THE ITALIAN INDUSTRY SUCH AS COKING COAL, WHICH IS OF COURSE INDISPENSABLE TO BLAST-FURNACES.

ITALSIDE RESUMED ITS CONTACTS WITH GERMANY, STARTED NEW RELATIONS WITH POLAND AND THE SOVIET UNION AND, AS A RESULT, IN 1970 ITALSIDERS COKING COAL REQUIREMENTS AMOUNTING TO 6.5 MILLION TONS WERE SUPPLIED 31& BY U.S., 36& BY GERMANY, 20& BY POLAND, 10& BY USSR AND 3& BY AUSTRALIA. THE REMARKABLE FALL IN PRODUCTIVITY RESULTING FROM THE LABOUR UNREST 0(DUE TO NEW HEALTH AND SAFETY REGULATIONS, ENVIRONMENTAL PROBLEMS, A.S.O.) LED TO DELIVERIES OF U.S. COKING COAL QUANTITIES IN THE FIRST HALD OF

THE 70S MUCH LOWER THAN CONTRACTED, ONLY ABOUT 60&.
ALREADY AT THAT TIME PURCHASING WAS COMPLETELY BASED ON LONG TERM AGREEMENTS OR EVER GREEN AGREEMENTS WITH TRADITIONAL AMERICAN COAL PRODUCERS.

MOREOVER THE IMPORTANT AGREEMENT CONCLUDED IN 1964 WAS FURTHER EXPANDED IN 1969 THANKS TO A FINANCIAL INVESTMENT BY ITALSIDER TO PROMOTE THE DEVELOPMENT OF A NEW POCAHONTAS MINE IN WEST VIRGINIA.

THE U.S. MINING INDUSTRY CRISIS, IN THE YEARS AFTER 1969, CREATED VERY SERIOUS PROBLEMS FOR ITALSIDER IN SPITE OF ALL THE PRECAUTIONARY MEASURES THAT HAD BEEN ALREADY TAKEN AND INDUCED US TO DEVELOP RELATIONS WITH AUSTRALIA, A SOURCE FROM WHICH, AS EARLY AS IN 1972, WE BEGAN TO TAKE DELIVERY OF COKING COAL IN QUANTITIES GREATER THAN 500,000 TONS.

ALL STEEL PRODUCERS EXPERIENCED MANY DIFFICULTIES IN THAT PERIOD AND MOST OF THEM LOST CONFIDENCE IN THE CONTRACTS THEN EXISTING WITH THE U.S. MINES. SUCH DIFFICULTIES WERE ALSO DUE TO THE EXCESSIVE ENTHUSIASM THAT THE U.S. MINES HELD AT THAT TIME FOR THE EMERGING JAPANESE CONSUMERS. HOWEVER, ITALSIDER MADE VERY EFFORT TO MAINTAIN ITS RELATIONS WITH THE MINES IN GOOD STANDING IN SPITE OF ADVERSE CIRCUMSTANCES, LATER SUCH A FRIENDLY ATTITUDE WAS APPRECIATED VERY MUCH BY THE MINES WHICH, IN THE MEANTIME, HAD RESUMED A SATISFACTORY LEVEL OF PRODUCTION BUT HAD LOST MANY CUSTOMERS. THUS, LITTLE BY LITTLE, ITALSIDERS IMPORTS FROM THE STATES INCREASED ONCE MORE TO SUBSTANTIAL TONNAGES.

IN 1981 WE SPENT MORE THAN 300 MILLION DLRS FOR OUR U.S. COKING COAL IMPORTS AND A FURTHER 60 MILLION DLRS WERE SPENT BY ALGERIA. THE PURCHASED QUANTITY WAS 5 MILLION TONS FOR ITALSIDER PLUS ONE MILLION TONS FOR ALGERIA. WE POINT OUT THAT SINCE 1978, THAT IS

SINCE THE CONSTRUCTION OF THE LAGERIAN COKING PLANT (SUPPLIED BY THE SOVIET UNION), WE WERE APPOINTED AS CONSULTANTS FOR THEIR COKING COAL SUPPLY. THUS, COKING COAL FOR ALGERIA IS NOW PURCHASED ENTIRELY FROM THE STATES UNDER THE SAME CONDITIONS PROVIDED IN OUR CONTRACTS, ACCORDING TO AN AGREEMENT REACHED WITH OUR U.S. SUPPLIERS.

RECENTLY ANOTHER TROUBLING FACTOR INTERVENED BETWEEN THE MINES AND ITALSIDER GREATLY TAXING OUR PATIENCE. BUT, BEFORE SPEAKING OF THE PRESENT SITUATION AND OF THE YEARS TO COME, I WISH TO ADD SOME OTHER INFORMATION.

ALREADY IN 1936 ITALSIDER WAS THE FIRST TO PLAN THE CONSTRUCTION OF A STEEL PLANT ON THE SEA COAST (I SPEAK OF THE GENOA CORNIGLIANO PLANT) WITH A VIEW TO SUPPLYING IT COMPLETELY WITH IMPORTED RAW MATERIALS. BECUASE OF THE WAR IT BEGAN OPERATING ONLY IN 1954, AND THEN WE FELT THE NECESSITY TO HAVE A SPECIALIZED FLEET FOR THE TRANSPORTATION OF RAW MATERIALS. THEREFORE WE ORDERED MANY VESSELS FROM 15,000 UP TO 80,000 TONNERS. (WE HAVE ALSO LARGER VESSELS WHICH ARE EMPLOYED AT PRESENT ONLY FOR TRANSPORTING IRON ORE TO THE PORT OF TARANTO WHICH CAN ACCOMODATE VESSELS UP TO 300,000 DWT). THESE VESSELS KEPT PACE WITH THE GROWTH OF THE PIERS AT HAMPTON ROADS, THANKS TO THE CLOSE COOPERATION WITH THE U.S. RAILROAD COMPANIES WHO MANAGE THEM.

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THEREFORE THE CHARACTERISTICS OF OUR VESSELS EXACTLY SUIT THE FEATURES OF THE PIERS AT HAMPTON ROADS, A FACT THAT APPEARED MUTUALLY USEFUL IN PARTICULAR DURING THE RECENT CONGESTION AT THE U.S. COAL LOADING TERMINALS,

LE TUS REVERT NOW TO THE NEW TROUBLING FACTOR MENTIONED BEFORE.

IN 1979 THE OIL CARTEL DOUBLED THE BARREL PRICE AND SINCE THEN COAL HAS BECOME A COMPETITIVE ENERGY SOURCE. AT THE SAME TIME POLAND REDUCED ITS COAL EXPORTS OWING TO THE WELL-KNOWN EVENTS. THE THEN LANGUISHING COAL MARKET RECOVERED AGAIN AN A NEW EXCESSIVE ENTHUSIASM, THIS TIME FOR STEAM COAL, DEVELOPED IN THE STATES. A GREAT NUMBER OF NEW STEAM COAL BUYERS AFTER PURCHASING ALL THE AVAILABLE COAL FROM SOUTH AFRICA AND AFTERWARDS FROM AUSTRALIA, TURNED TO THE U.S. MARKET. THE RESULT WAS A TERRIFIC CONGESTION AT THE U.S. PORTS WHICH WERE BUILT AND EQUIPPED FOR THE XPORT OF COKING COAL AND NOT FORTHE EXPORT OF STEAM COAL. NO DISTINCTION WAS MADE BETWEEN TRADITIONAL AND NEW CUSTOMERS SO THAT, FOR INSTANCE, ITALSIDER WHICH MORALLY IS ONE OF THE PROMOTING PARTNERS OF THE U.S. COAL PORTS, SINCE IT HAS ALREADY PAID FOR THEM THROUGH THE HIGH RAILROAD FREIGHT RATES IT HAS BEEN HANDING OVER FOR SO MANY

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YEARS, SUFFERED EITHER DIRECT OR INDIRECT DAMAGES OVER TWELVE MONTHS FROM MID-1980 TO MID-1981 FOR AN AMOUNT OF ABOUT 200 MILLION DLRS. (EXCLAMATION MARK).

I LET YOU IMAGINE HOW FURIOUS WE WERE. (EXCLAMATION MARK).

THIS SITUATION BECAME MORE DRAMATIC BECAUSE OF THE MINERS STRIKE THAT LASTED TWO AND A HALF MONTHS. AT THAT TIME I FLEW TO WASHINGTON AND, THANKS TO THE ASSISTANCE OF THE U.S. EMBASSY IN ROME, I HAD TWO MEETINGS WITH THE UMWA PRESIDENT AND WITH SOME OFFICIALS OF THE US DEPARTMENT OF COMMERCE. THE DANGER OF STOPPING OPERATIONS WAS AVERTED AT THE VERY LAST MOMENT. COULD YOU IMAGINE THE CONSEQUENCES WHICH WOULD HAVE ENSUED FROM THE STOPPING OF OPERATIONS AT OUR PLANTS, WHERE 50,000 WORKERS ARE DIRECTLY EMPLOYED AND AT LEAST THE SAME NUMBER OF WORKERS INDIRECTLY EMPLOYED IN AREAS POLITICALLY AND SOCIALLY VERY DELICATE? (THE COMMUNIST PARTY OF ITALY VIRTUALLY CONTROLS THE UNIONS).

REVERTING TO THE PROBLEM OF COAL IN GENERAL, WE HAVE SOME DOUBTS THAT AMERICAN STEAM COAL, IF NOTHING IS PROMPTLY DONE, WILL BE COMPETITIVE IN THE FUTURE IN COMPARISON WITH OTHER SOURCES OF SUPPLY WHICH HAVE LOWER COSTS AND ARE ALREADY DEVELOPING PROJECTS TO INCREASE THEIR SHARE IN THE MARKET, IN TERMS OF MINES, RAILROADS, PORTS, A.S.O. THIS MAY BE THE REASON WHY MANY U.S. OPERATORS DO NOT OPEN NEW MINES WITHOUT LONG TERM AGREEMENTS WHILE, ON THE OTHER SIDE OF THE ATLANTIC, EUROPEAN STEAM COAL CONSUMERS DO NOT SEEM READY TO EXECUTE LONG TERM CONTRACTS.

ANOTHER REASON MIGHT BE THE FEELING THAT OIL COMPANIES WANT TO EXTEND THEIR CONTROL ALSO TO OTHER ENERGY SOURCES SUCH AS URANIUM AND COAL. THIS IS A VERY UNEASY FEELING TO US.

ANOTHER ASPECT OF THE PROBLEM, PERHAPS CONNECTED OR NOT WITH THIS FEELING IS THAT THE U.S. GOVERNMENT DOES NOT CLEARLY OPPOSE BILLS TROUBLING ITS ALLIES. THIS IS THE CASE OF THE DISCRIMINATION IN BERTHING COAL VESSELS FOR EXPORT IN FAVOUR OF U.S. COASTAL VESSELS OR OF OTHER BILLS SUCH AS THE ONE REQUESTING THAT 40% OF ALL BULK GOODS EXPORTED FROM THE STATES (GRAINS, COAL, A.S.O.) BE TRANSPORTED WITH U.S. FLAG VESSELS (BUT THE STATES HAS N NOT SO GREAT A FLEET TO DO THIS) OR RUMORED LAW PROVISIONS SUCH AS THE ONE SUGGESTING TO LIMIT TO 5% THE INTERESTS OF FOREIGN COMPANIES IN U.S. COMPANIES OPERATING IN THE ENERGY FIELD ON GOVERNMENTAL CONCESSIONS. THESE ARE ALL CONFUSING THINGS WHICH DO NOT HELP TO BUILD CONFIDENCE.

OUR COKING COAL IMPORTS ARE CENTERED ON THE U.S. SOURCE AND WE HAVE TO REMIND YOU THAT COKING OCAL IS NOT AN ENERGY SOURCE BUT A RAW MATERIAL FOR THE STEEL INDUSTRY FOR WHICH IT IS IMPERATIVE TO MINIMIZE COSTS IN ORDER TO GUARANTEE ITS SUBSISTENCE. THIS MEANS - AND WE STRESS IT ONCE AGAIN - THAT COKING OCCOAL, BEING CONNECTED WITH THE STEEL INDUSTRY, HAS A STEADY AND TIMELY INDUSTRIAL RELATIONSHIP WITH CONSUMERS AND THEREFORE IT IS NECESSARY IN THE FUTURE DEVELOPMENT OF U.S. COAL EXPORTS THAT AUTHORITIES, PRODUCERS AND RAILROADS BEAR WELL IN MIND THEIR RESPONSIBILITY FOR A SUPPLY DESTINED, AS MENTIONED BEFORE, TO KEY-INDUSTRIES IN ALLIED COUNTRIES#THESE KEY-INDUSTRIES NEED TO CONTINUE AN UNINTERRUPTED PRODUCTION, THUS GUARANTEEING THE EMPLOYMENT ON THEIR WORKERS#

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FAILING THIS, VERY SERIOUS SOCIAL AND POLITICAL PROBLEMS WOULD DEVELOP, WHICH WOULD AFFECT THE ABILITY OF ALLIED COUNTRIES TO HONOR THEIR COMMITMENTS TO THE UNITED STATES IN OTHER FIELDS.

AT PRESENT WE HAVE REACHED SOME AGREEMENTS WITH THE RAILROADS AND THE MINES IN ORDER TO REDUCE THE DAMAGES SUFFERED BY US OWING TO CONGESTION AT THE U.S. PORTS BUT WE ARE STILL WORRIED ABOUT THE FUTURE. IN FACT, NOBODY SO FAR HAS ACKNOWLEDGED THE RIGHT OF LOADING PRIORITY TO LONG TERM AGREEMENTS WHICH, ON THE CONTRARY, WE CONTINUE TO INVOKE AS A FUNDAMENTAL RIGHT. NOBODY SO FAR HAS ACKNOWLEDGED THE RIGHT OF LOADING PRIORITY TO COKING COAL FOR WHICH THE GREAT COAL EXPORT PORT OF HAMPTON ROADS WAS CUSTOM-BUILT.

AS IT CAN BE EASILY UNDERSTOOD, THE RELATIONS EXISTING BETWEEN ITALSIDER AND OUR RAW MATERIALS SUPPLIERS (THEREFORE ALSO OUR COKING COAL SUPPLIERS) ARE NOT MERE COMMERCIAL RELATIONS BUT A STEADY AND LONG-LASTING INDUSTRIAL COOPERATION BETWEEN PRODUCERS AND CONSUMERS AIMED AT MINIMIZING COSTS IN ALL THE SEGMENTS OF THE PROCESS AND GUARANTEEING A STABLE EMPLOYMENT OF ALL WORKERS CONCERNED, THAT IS BOTH THE AMERICAN AND THE

ITALIAN ONES.

WE EXTEND OUR BEST WISHES THAT U.S. MINES WILL ENJOY A BIG DEVELOPMENT, BUT WE WISH ALSO THAT THIS HAPPENS WITHOUT SACRIFICING THOSE WHO LONG AGO CHOSE THE USE OF COAL AS A RAW MATERIAL. THE SAFEGUARDING OF THE COKING COAL STRUCTURES IS INDISPENSABLE TO HEAVY INDUSTRY.

MANY OF OUR CONTRACTS WERE RECENTLY EXTENDED UP TO 1990 AND THE FOLLOWING YEARS AND THEREFORE AN ORDERED AND STABLE MARKET IS NECESSARY. THE COAL MARKET CANNOT BE REGARDED AS A SHOP STORE WITH A QUEUE AWAITING AT THE ENTRANCE DOOR, AS HAPPENED OVER THE PAST 12 MONTHS.

IT CAN BE EXPECTED THAT, ACCORDING TO THE LONG TERM DEMAND, SUPPLIED UNDER LONG TERM AGREEMENTS, PRODUCTION WILL GRADUALLY DEVELOP THANKS TO PRIVATE DECISIONS AND INTERESTS BUT, IN OUR OPINION, THE PROMOTIONAL AND CONSTRUCTIVE PRESENCE OF PUBLIC AUTHORITIES IS ALSO NECESSARY.

FOR INSTANCE, IF WE CONSIDER THE PROBLEMS DEVELOPING FROM THE HANDLING OF LARGE STEAM COAL QUANTITIES, THE ROLE OF SMALL AND MEDIUM MINES MIGHT BE SACRIFICED AND THEREFORE PARTICULAR ATTENTION SHOULD BE PAID BY THE PUBLIC ADMINISTRATION IN ORDER TO AVO AVOID THEIR SUPPRESSION. THIS WOULD PROBABLY INVOLVE THE ADMINISTRATION IN THE CONTROL OF, OR IN THE BUILDING OF PARTICULAR INFRASTRUCTURES TO SECURE THE COHERENCE OF THE SYSTEM, INCLUDING MINES-RAILROAD-PORTS-VESSEL SIZE. WE CAN THINK OF COLLECTION CENTERS IN THE DIFFERENT AREAS , WHICH WULD ALSO ALLOW THE USE OF UNIT TRAINS TO THE PORTS.

AT THIS POINT IN TIME WE THINK THAT TO AVOID A DEADLOCK WHICH IS OF NO BENEFIT TO ANYBODY TWO PROPOSALS FROM OUR SIDE SHOULD BE GIVEN

YOUR CONSIDERATION:

1. AS ALREADY DONE BY THE U.S. GOVERNMENT IN THE PAST, WHEN IT PROMOTED THE NATHAN REPORT, IT WOULD BE ADVISABLE NOW TO CARRY OUT AN EXHAUSTIVE AND REALISTIC STUDY UNDER THE GUIDANCE OF A COMMITTEE OF COAL EXPERTS. POTENTIAL EXPORT MARKETS SHOULD BE INVESTIGATED, DETERMINING THEIR IMPORTANCE AND DEFINING THE ACTIONS TO BE TAKEN. A STUDY OF THIS KING COULD BE MANAGED FOR INSTANCE BY A COMMITTEE OF WHICH I VENTURE TO SUGGEST THE COMPOSITION AND, IN SOME CASES, THE NAMES OF THE EXPERTS, ALL OF THEM HAVING A VERY LONG AND DEEP EXPERIENCE IN THE COAL FIELD AND OVERSEAS EXPORT:

-MR. NICK CAMICIA - CHAIRMAN OF PITTSTON COMPANY
-MR. FRED HOLWAY - C.C.B. FORMER PRESIDENT AND FORMER PRESIDENT OF COAL EXPORTERS ASSOCIATION
-MR. FRANK LARAJA - SPRAGUE FORMER PRESIDENT
-MR. BILL MCBRIDE - DIRECTOR COAL EXPORT USS
-A REPRESENTATIVE OF THE COAL EXPORTS ASSOCIATION, FOR INSTANCE MR. MARC JOSEPH
-A REPRESENTATIVE OF THE COAL BITUMINOUS ASSOCIATION
-A REPRESENTATIVE OF UMWA
-A REPRESENTATIVE OF THE RAILROADS, FOR INSTANCE MR. FISHWICK - DIRECTOR N AND W.

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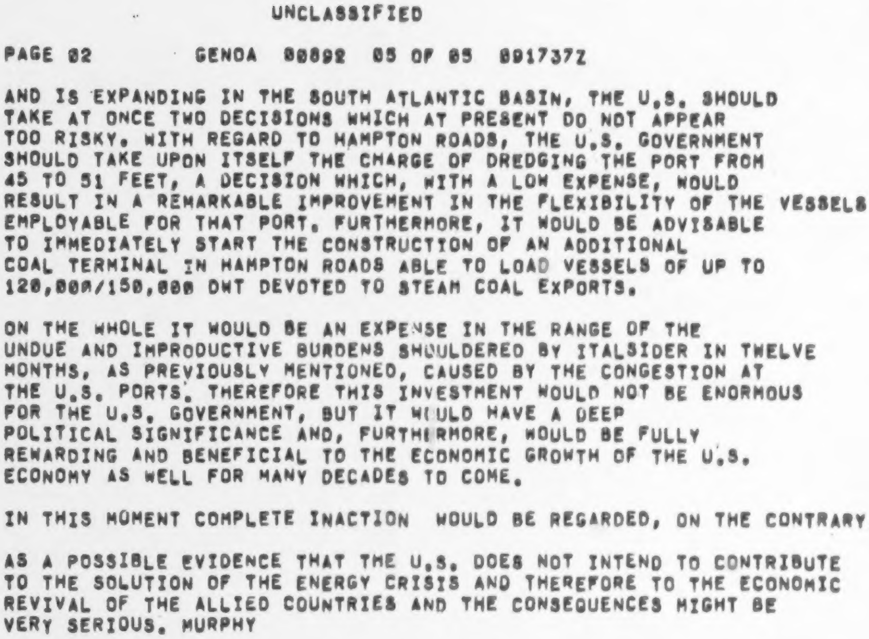
-A REPRESENTATIVE OF THE U.S. ADMINISTRATION
-A REPRESENTATIVE OF JAPANESE STEEL INDUSTRY (FOR INSTANCE FROM NIPPON STEEL)
-A JAPANESE STEAM COAL CONSUMER
-A REPRESENTATIVE OF THE FRENCH ATIC
-TWO EUROPEAN STEAM COAL CONSUMERS (FOR INSTANCE ONE DANISH AND ONE OF ENEL/ITALY)
-A REPRESENTATIVE OF THE EUROPEAN STEEL INDUSTRY (FOR INSTANCE FROM ITALSIDER)
-A REPRESENTATIVE OF THE CONSUMERS OF THE ASIATIC SOUTH EAST
-A SOUTH-AMERICAN CONSUMER (FOR INSTANCE A REPRESENTATIVE FROM SIDERBRAS/BRAZIL)
-A REPRESENTATIVE OF EUROPEAN COMMERCIAL COMPANIES (FOR INSTANCE ANKER/ROTTERDAM OR CLERICI/GENOA)
-A REPRESENTATIVE FROM THE EUROPEAN COAL STEEL COMMUNITY.

THIS STUDY COULD BE COMPLETED WITHIN SIX MONTHS AND BE THE BASIS FOR THE DECISION THAT WILL BE TAKEN FOR THE FUTURE.

2. IN THE MEANTIME, RELYING ON THE FACT THAT THE FUTURE STEAM COAL MARKET IS DUBIOUS WHILE THE COKING COAL MARKET IS MUCH MORE STABLE AND ENJOYS A SETTLED PATTERN OF TRADE



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AND IS EXPANDING IN THE SOUTH ATLANTIC BASIN, THE U.S. SHOULD TAKE AT ONCE TWO DECISIONS WHICH AT PRESENT DO NOT APPEAR TOO RISKY. WITH REGARD TO HAMPTON ROADS, THE U.S. GOVERNMENT SHOULD TAKE UPON ITSELF THE CHARGE OF DREDGING THE PORT FROM 45 TO 51 FEET, A DECISION WHICH, WITH A LOW EXPENSE, WOULD RESULT IN A REMARKABLE IMPROVEMENT IN THE FLEXIBILITY OF THE VESSELS EMPLOYABLE FOR THAT PORT. FURTHERMORE, IT WOULD BE ADVISABLE TO IMMEDIATELY START THE CONSTRUCTION OF AN ADDITIONAL COAL TERMINAL IN HAMPTON ROADS ABLE TO LOAD VESSELS OF UP TO 120,000/150,000 DWT DEVOTED TO STEAM COAL EXPORTS.

ON THE WHOLE IT WOULD BE AN EXPENSE IN THE RANGE OF THE UNDUE AND IMPRODUCTIVE BURDENS SHOULDERED BY ITALSIDER IN TWELVE MONTHS, AS PREVIOUSLY MENTIONED, CAUSED BY THE CONGESTION AT THE U.S. PORTS. THEREFORE THIS INVESTMENT WOULD NOT BE ENORMOUS FOR THE U.S. GOVERNMENT, BUT IT WOULD HAVE A DEEP POLITICAL SIGNIFICANCE AND, FURTHERMORE, WOULD BE FULLY REWARDING AND BENEFICIAL TO THE ECONOMIC GROWTH OF THE U.S. ECONOMY AS WELL FOR MANY DECADES TO COME.

IN THIS MOMENT COMPLETE INACTION WOULD BE REGARDED, ON THE CONTRARY,

AS A POSSIBLE EVIDENCE THAT THE U.S. DOES NOT INTEND TO CONTRIBUTE TO THE SOLUTION OF THE ENERGY CRISIS AND THEREFORE TO THE ECONOMIC REVIVAL OF THE ALLIED COUNTRIES AND THE CONSEQUENCES MIGHT BE VERY SERIOUS. MURPHY

Senator WARNER. I thank you very much for that explicit, clear explanation.

Because of the time constraints, the subcommittee has had to forego questions which would have been very helpful. However, I desire to submit those questions in writing with the hope that you will respond in a timely fashion.

We will keep the record open for some 2 months because this is a very, very important series of hearings, and you have come forward and provided valuable information for this subcommittee and the Senate as a whole.

I thank you and I hope that your visit here to the United States will be safe and provide a good measure of happiness, and that they will be fruitful.

As you will note in our parliamentary situation all those lights indicate all Senators must appear on the floor immediately for the purpose of casting votes. Thank you very much, ladies and gentlemen.

[Whereupon, at 10:27 a.m., the hearing was adjourned, subject to the call of the Chair.]

APPENDIX

ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD

COMMISSION OF THE EUROPEAN COMMUNITIES

COM(80) 117 final

Brussels, 18th March 1980

OUTLOOK FOR THE LONG-TERM COAL SUPPLY AND DEMAND TREND IN THE COMMUNITY

(Report from the Commission to the Council)

At the Energy Council meeting of 4 December 1979 the Commission was asked to submit a report on the long term outlook for coal in the Community.

The report is hereby submitted.

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- (c) Coal Imports 16

I. Introduction

1. The pattern of coal consumption in the Community was fairly encouraging in 1978/79, and supply and demand can be expected to develop in balanced fashion in 1980 and the following year. Although in the short term there should not be any serious problems, the long-term outlook for coal supply and demand in the Community in view of the new world energy situation is difficult to predict. A period of 20 years (1980 to 2 000) is considered, with 1990 included as an interpolation value.

2. This study is in no way intended to anticipate a long-term coal and energy policy strategy for the Community; which has yet to be worket out. It deals solely with economic trends on the Community coal market and does not refer to political options or aims or of methods of achieving such aims.

   It also leaves out of account the possibility that political events may have serious repercussions on the world energy market.

3. Only general assumptions can be made and general estimating methods used to investigate trends on the coal market. The figures given for the coal market and the remarks made apply to the Community in general and not to individual Member States. The coal market has, however, been divided into consumption sectors for analysis purposes.

4. A number of organizations and companies have made energy forecasts since 1975 covering varying periods. These include the ECSC Consultative Committee[1], the IEA[2], OECD[3], WEC[4], WAES[5], EXXON[6] and BP[7].

   The Commission's services have drawn on these sources in preparing this paper but have based their estimates on considerations of their own. In some cases their estimates are within the margins of error of other published estimates but in others they vary widely from the latter.

5. In 1979 the Commission's services wrote energy consumption scenarios for the year 2 000 which are now being revised. Since it will take some time before the results can be finalized, the figures given in this paper should be regarded as provisional.

6. It is especially difficult to work out prediction for 2 000 because we are on the threshold of tremerdous economic and technical developments in the energy sector. These are summarized below :

   - General economic growth (availability of indigenous resources, balance of payments problems, general price trneds)
   - Political and economic behaviour of energy consumers in reaction to the situation on the world oil market
   - Energy prices which are not clearly oriented to production costs
   - Technical safety, ecological and environmental considerations.

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[1] ECSC Consultative Committee : "Medium and Long-Term Perspectives for Coal in the Community" (1979). O.J. N° C 161, 28.6.1979

[2] IEA : "Steam Coal, Prospects to 2000", Paris 1978

[3] OECD : "World Energy Outlook", Paris 1977

[4] World Energy Conference : "World Energy, Looking Ahead to 2020", Report by the Conservation Commission (1978)

[5] Workshop on Alternative Energy Stragegies "World Energy Prospects 1985-2000" (1977)

[6] EXXON : "World Energy Outlook" (1978)

[7] BP : " Energy 2000 - Trends and Outlook" (1977).

- New developments in energy technology (fluidized-bed combustion, gasification and liquefaction of coal, heat pump, combined heat/power generation, rationalization of energy consumption, better insulation, etc.)

- Development of "new" energies (geothermal, wind and solar energy).

Altough these factors will undoubtedly have an influence in the coming decades, it is extremely difficult to quantify what effect they will have on trends in the energy sector. It should therefore be stressed that the figures given are based on assumptions and that there are large margins of uncertainty.

7. The margins of uncertainty are mentioned solely in the text. Mean values are given in the tables for clarity's sake.

II. Economic Growth and Primary Energy Consumption

8. future economic growth in the Community will be determined by a large number of factors - the individual effect of which will be to curb or accelerate growth but whose overall effect will be offset or cumulative - thus sustaining any estimation of GDP growth rates extremely hazardous.

The yearly growth rates for real GDP given in Table 1 (3.6% for 1980/90 and 3% 1990/2000 lead to virtually a doubling in twenty years (index 192). Similar growth rates are used in many other published estimates.

The annual growth rate of 3.3% given in Table 1 for the period 1980 to 2000 as a whole would probably represent a minimum of 2.8% and a maximum of 3.5%. With annual growth rate of 2.8% the index for GDP is 174 in the year 2000 and with an annual growth rate of 3.5% 200 (1980 = 100), a difference in growth of 25%. Annual growth rates of less than 2.8% would aggravate the problem of unemployment.

9. Until the oil crisis in 1973 the ratio of economic growth to the increase in overall primary energy consumption (expressed as an elasticity coefficient) had for a fairly long time been 1 : 1, giving a coefficient of 1. As a result of the increase in the price of oil and other energy sources and conscious efforts by private and other energy consumers, energy savings were made between 1973 and 1979 which brought the energy coefficient down to 0.8. It can be assumed under favourable conditions that the coefficient can be further reduced to 0.75 or 0.65 (see Table 1 in the Annex) for the following reasons :

- Further rises in energy prices will encourage conservation
- Many energy-saving techniques will only gradually begin to have any impact in the future
- Energy-intensive industries will probably not expand as much as the GDP.

10. Economic growth and the elasticity of consumption determine overall energy consumption, which, according to the assumptions made in Table 1, will be 1 340 mtoe in 1990 and 1 640 mtoe in 2000. Given the variations in economic growth (see point 8), this gives a margin of uncertainty of about 100 mtoe for 1990 and 140 mtoe for 2000. The consumption figures given in Table 1 would hence lie in the following range (in mtoe) :

	Lower estimate	Mean value (Table 1)	Upper estimate	Margin
1990	1270	1340	1370	+ 30/ - 70
2000	1540	1640	1680	+ 40/ -100

III. Breakdown of Overall Energy Consumption by Energy Source

(see Table 1 and 2 in the Annex)

11. The figures given for the future trend of natural gas consumption are based on production and import prospects. Similar figures are given in several other studies. It has been assumed in this paper that the use of natural gas for electricity generation will decline sharply after 1990.

12. Oil consumption and supply forecasts are extremely uncertain. The forecasts made in this paper are based on the following assumptions :

- Community oil production will rise from around 90 million t in 1980 to 130 million t in 1990, remaining at this level until 2000.
- Consumption will increase slightly until 1990 but will then drop as synthetic products derived from the liquefaction of coal come on to the market around 2000.
- Oil imports will be limited to 470 million t between 1980 and 1990 and will then fall.

It can also be assumed that the use of heavy fuel oil in power stations like that of natural gas, will decline significantly.

13. Hydro, geothermal, lignite and other energy sources will represent approximately 60 mtoe in 1980. It is assumed that this figure will virtually double by 2000 to 115 mtoe but that a varying pattern will emerge for each energy source. Rough estimates are given, particularly for geothermal, solar and other energies because there are no reliable methods of calculation. No margins of uncertainty can be given for these energy sources; the figures given are to be regarded as maximum values, however.

14. Total electricity consumption is a decisive factor for the future development of nuclear energy and coal. The figures given in Table 2 for estimated total electricity production are assumed to be realistic. If only limited quantities of oil, gas, hydro, lignite, etc. are available as input energies, it can be assumed that there will be a direct interrelationship between nuclear energy and coal in this consumption sector in the future. A gap in the supply of nuclear energy for example would automatically have to be filled by coal and vice versa.

15. As far as can be acertained, from the information now availalbe, base-load electricity will be produced more cheaply in nuclear power stations than in coal-fired power stations in the Member States in the eighties and probably in the longer term. (This will be true even if electricity producers can burn cheap imported coal). Electricity producers will thus endeavour to meet base-load needs with nuclear energy as far as possible. However, since these economic considerations are subject to varying constraints in all Member States, coal-fired power stations will have to be used to meet more than just medium-load electricity demand. However, the location of new sites for coal-fired power stations is also a problem as it is for nuclear power stations and any estimate of the share of coal and nuclear energy in future electricity production is hence extremely unreliable.

16. There are wide variations between the different predictions of future nuclear energy use. Because of the repeated revisions of national programmes the Commission is faced with a difficult task in trying to make fairly reliable assumptions about the future. Based on current national programmes and other published data, typical figures for nuclear energy use are around 170 mtoe for 1990 and 275 mtoe for 2000. Special efforts will be necessary if these orders of magnitude are to be effectively achieved.

A margin of at least 10% either way (i.e. 20% in all) is incorporated in these figures.

The use of nuclear energy and coal in power stations can be broken down as follows, allowing for this margin :

Table A

Use of Nuclear Energy and Coal in Electricity Generation
(Community)

mtoe

		Lower estimate	Mean value (Table 2)	Upper estimate	Overall margin
1990	Nuclear energy	155	170	185	30
	Coal	145	130	115	30
	Total	300	300	300	
	Nuclear energy	250	275	300	50
	Coal	255	230	205	50
	Total	505	505	505	

IV. Coal Demand (see Tables 3 to 5 in the Annex)

17. Coal consumption is broken down by consumption sectors in the Member States coal balances given in the Annex. Consumption of patent fuel and coke has been converted into coal to enable a uniform balance to be drawn up. Figures are given in million tonnes (t = t) to facilitate comparison with Member States' or the Commission's coal statistics. The correlation between the overall figures given in Table 1 for coal, expressed in toe, and the figures given in Tables 3 and 4, expressed in coal (t = t) was established using the conversion factors shown in Table 5. The factors given for 1980 were used for the entire period considered.

18. No comments will be made here on Tables 3 and 4 since past trends of Community coal consumption are of less relevance to the future than are new trends.

19. Table 5 shows the forecasts for the Community's coal consumption by sector This table applies only to the Community as a whole and not to the individual Member States because at present, no satisfactory information is available concerning energy consumption by country and by sector.

20. The use of coal in power stations has already been discussed under point 16. This consumption sector - along with steam coal - will account for the major share of future coal consumption, levelling off at around 60% in the period 1980 to 1990 and then rising to 70% by 2000.

21. The coal required by the steel industry is mainly coking coal. The quantities required depend on the quantities of steel produced and the specific coke consumption per tonne of pig iron. It is assumed that crude steel production will rise from some 136 million t in 1980 to 160-170 million t in 1990 and to 180-190 million t in the year 2000. As regards specific coke consumption, it is to be expected that, although the overall heat requirement per tonne of pig iron will decline, the specific consumption of coke - which now stands at some 500 kg - will decline slowly because of the steeply rising price of fuel oil. It was on this basis that the figures in Table 5 for the steel industry's coal consumption were arrived at.

22. An increase is forecast in the coal requirement of the other industries contrary to the trend in the previous 20 years - but there is some uncertainty as to its scale. The figures are a rough estimate. However, a reversal of the trend of coal consumption in this area may be safely assumed, since the introduction of new technologies (eg fluidized-bed combustion) is to be expected and the relative prices of fuel oil and coal are likely to evolve to the advantage of coal, particularly if imported coal continues to determine the price of Community coal (see point 31).

32. In line with the previous trend, the demand for coal in the domestic sector is likely to continue to decline for the following reasons :

- Although the number of dwellings in the Community is likely to continue to increase, the heat requirement per dwelling will decline considerably because of improved insulation in both old and new housing.

- Waste heat from power stations, solar energy, cracking products from oil refineries and natural gas will be used to a greater extent for space heating.

24. The quantities of coal under the heading "Other" relate mainly to the gasification and liquefaction of coal – which explains the rise to some 25 million t in the year 2000. This figure too is a rough estimate based on the assumption that by 2000 or thereabouts at least five gasification and liquefaction plants each with an annual input of 5 million t of coal will be in operation.

25. Addition of the demand figures produces mean values indicating total coal consumption of 390 million t in 1990 and 580 million t in the year 2000 (Table 5 in the Annex).

If the alternative estimates of economic growth (see point 10) are applied proportionately to coal and if the alternative estimate of nuclear energy (see point 16) are applied fully to coal, the following estimated margins emerge :

Table 8

Estimate of the Possible Spread of Community Coal Consumption

	Mean value : mtoe		235	
	mt (t=t)		390	
	Margin : mtoe			
1990	- Economic growth	- 10		+ 5
	- Nuclear energy	- 15		+ 15
	Limit values : m toe	210		255
	mt (t=t)	350		420
	Mean value : mtoe		345	
	mt (t=t)		580	
	Margin : mtoe			
2000	- Economic growth	- 25		+ 8
	- Nuclear energy	- 25		+ 25
	Limit values :mtoe	295		378
	mt (t=t)			635

If economic growth is only an average of 2.8% a year and if nuclear energy develops 10% faster than envisaged today, 40 million t less coal would be needed in 1990. Conversely, greater growth of the gross domestic product and a smaller expansion of nuclear energy would mean an additional requirement of 30 million t of coal in 1990. The margin of uncertainty of the forecast is thus 70 million t of coal.

For the year 2000 this margin is naturally even greater, i.e. 140 million t. Demand could be 85 million t of coal less or 55 million t of coal more than the mean value.

26. The preceding estimates appear extremely high in comparison with the Community's present coal consumption. The reader should bear in mind the method of estimation described at the beginning of this document.

It should be pointed out that the possible disadvantages of using too high an estimate of demand may be regarded as being less significant than those which would arise from using too low an estimate.

27. In calculating this rapid and steep rise in coal consumption in the Community it has been assumed that the corresponding consumption capacities will develop at the same rate. In fact, however, there will of course be technical and financial difficulties, as well as environmental problems. The same applies to the infrastructure, which includes ports, handling and transport facilities of all kinds, the distribution network, coal storage facilities, the disposal of combustion residues etc.

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V. Coal Supply

(a) General Considerations

28. It is generally thought today that the evolution of the world energy market up to the year 2000 will be marked by a relative, possibly increasing, energy shortage. Energy prices are, accordingly, expected to continue to rise. The market will - outside periods of economic recession - be a seller's market, i.e. competition between the different energy sources will be very marked at national or international level. Competition is unlikely to heat up until once a very high energy price level has been reached, the alternative energies become competitive and available in appreciable quantities.

29. Because of the various influences to which they are subject, the situation on the markets for the individual energy sources will continue to vary. A decisive factor as regards the Community coal market is that the Community's coal-mining industry is run by very large (and, in part, nationalized) units and is kept alive by State subsidies of varying size.

Coal imported from non-Community countries has a decisive influence on prices. Although this coal has only a 20% share of the market, it sets the upper price limits for both coking coal and steam coal. However, on the general industrial heat market, imported coal has not entirely taken over from oil as the main price-leader.

30. To avoid endangering the existence of a Community mining industry with high production costs, the Governments of the four coal-producing countries in the Community pursue import policies - each in line with its own requirements and in varying ways - seeking to safeguard the marketing of national output. The necessities of employment policy sometimes also play a part.

- The other Member States have no restriction on the importation of coal from non-Community countries.

31. It may be assumed that, because of the prevailing geological conditions, the coal mined in the Community will continue to be extracted at substantially higher costs than non-Community coal.

However, it is open to question to what extent production costs (including sea transport in the case of imported coal) will continue to be the main determining factor for price formation on the Community's coal market. Nor - for a wide range of reasons - can a lack of supply flexibility be excluded in respect of non-Community coal either, a fact which sometimes causes steep price rises.

The fact remains that since 1973 coal imports into the Community have doubled. This expansion shows that a world coal market which, in comparison with other markets is largely exempt from State interference, has managed to preserve the advantages of a market governed by free competition : continuity of supply, flexibility and a calm price trend. Provided there are no tendencies for cartels to be formed on this world market, it may be assumed that, in the medium and long term, the price of imported coal is unlikely to be substantially higher than the marginal production and transport costs. Imported coal's competitive lead over Community coal as a result of its natural advantages is likely to persist.

32. There seems little point in trying to estimate the level of subsidy which Community coal will probably require. Under normal conditions the aids for Community coal are likely to continue to increase. This is particularly likely to be the case if because of the energy supply situation worldwide, existing extraction capacities have to be maintained, or even slightly increased.

33. On the basis of the policy considerations we have described, it is assumed below that Community coal will continue to occupy a special position in the four coal-producing countries, though the situation will not be the same in all four. It is further assumed, on the basis of past experience within the Community and a number of official statements, that only marginal quantities of this coal will be supplied to markets other than those of the countries concerned. However, coking coal and coke for the steel industry will no doubt continue to be an exception.

It is assumed that remaining requirements, ie in the five other Member States, but also in the four coal-producing countries will be covered by non-Community coal.

(b) Community Coal Production (see Table 6)

34. Table 6 attempts to quantify the various coal extraction trends in the individual Community countries. It is based on the national energy programmes, official statements by Governments and coal producers, investment programmes etc.

While production will decline in Belgium and France because the mines there are highly uneconomic, increases are to be expected in the United Kingdom and the Federal Republic of Germany but only if massive injections of public money are made. The assumptions are to be regarded as optimistic and thus as maximum quantities.

On the basis of these figures the production target of 270 million t (t = t) for 1985 set by the Community in 1974 would be just about achieved in 1990 and exceeded by some 10% in the year 2000.

35. In terms of existing coal reserves, technical possibilities and planning, the estimates contained in Table 6 are feasible. However, the following conditions must be fulfilled if the necessary capacities are to be available in time :

- Capital investment must be increased to raise capacities and achieve rationalization. The advantages of a modern and generously scaled layout for new mines is likely to be balanced out by the high capital outlay and the more difficult working conditions at greater depths.

- If productivity per hour of work rises only slowly and working time per year declines slightly, high wages and attractive working conditions will have to be offered to attract an adequate work force.

- Raising of productivity must be backed up by rapid shutdown of marginal capacities, combined with appropriate social plans.

- The setting up of mines at new locations must not be delayed by excessively protracted approval procedures.

(c) Coal Imports (see Table 6)

36. According to the calculations in Table B (see point 25) coal imports into the Community would be as follows (order-of-magnitude figures)

Table C

Coal Imports into the Community
in t(t = t)

		Lower estimates	Mean value (Table 6)	Upper estimates	Margin
1990	Consumption	350	390	420	- 40/+30 (70)
	Community production	263	263	263	
	Imports	87	127	157	- 40/+30 (70)
2000	Consumption	495	580	635	- 85/+55 (140)
	Community production	300	300	300	
	Imports	195	280	335	- 85/+55 (140)

As explained in point 33 the calculations assume that imported coal will cover the difference between consumption and indigenous production.

It must also be pointed out that the increase in the Community's import requirement will mainly concern steam coal (see consumption structure in Table 5 in the Annex). High-grade coking coal is likely to remain in fairly short supply on the world market and highly valued in periods of cyclical upturn for the steel industry. Under these conditions Community coking coal could regain its ability to compete. The Community's steel industry will accordingly continue to rely mainly on Community coking coal.

37. World hard coal production in 1978 was some 2 630 million tonnes. According to recent predictions, by the end of the century it could increase to some 5 000 to 6 000 million tonnes. As for Community coal, optimum conditions will be needed for the world's other coal producers if this order of magnitude is to be achieved by the year 2000.

At the 10th World Energy Conference in Istanboul, the 11 main coal-producing countries announced their intention of increasing output from 2 200 million t (1975) to 3 400 in 1985 and 5 100 million in the year 2000. In some cases it is open to question whether these targets will be reached.

38. In view of the expected increase in world hard coal output, it may be assumed that additional quantities will be sold on the world market. This report does not provide a detailed estimate of the scope and structure of the world coal market up to the year 2000 : Commission document COM(79)322 final, should be consulted in this connection.

39. International forecasts of the evolution of world hard coal output come to the conclusion that in the year 2000 between 350 and 700 million t could be available for export, of which 200 to 500 million t would be steam coal. In relation to world output in the year 2000, this would be a volume of 6 to 12%, ie the present export rate of 5% would rise considerably. In 1978, 133 million t 1) out of an output of 2 630 million was exported.

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[1] Excluding trade within the Community, COMECON and USA/Canada

If output doubled, absolute export quantities would triple or sextuple, as the case may be,while the traditional coal-exporting countries be joined by newcomers to the world market such as China, India, Colombia and Botswana. The increase in supply on the world market will mainly concern steam coal.

40. The Community's increased import requirement will also mainly concern steam coal. The Community is the largest customer for world market steam coal, and despite competition from Japan and other East Asian countries, it is likely to retain this position in the long term.

In 1980 the Community will absob some 66 million t of imported coal of all qualities, ie some 40% of the volume of world trade in coal [1]. If this share remains constant and if it is applied to the volume of world trade estimates above (350 to 700 million t), the result is imports of 140 to 280 million t in the year 2000. This highly simplified view of the situation leads to the conclusion that the lower and mean values for imported coal in Table C on page 16 could be more or less achieved.

41. For the time being it is by no means certain that world hard coal output and hence the supply available on the export market will be as high as the quantities cited above. However, the prerequisites for this do at least exist, for a large number of overseas countries are known to have large technically and economically workable reserves. At the same time, the following reservations must be expressed

- The necessary extraction capacities have yet to be created. Depending on the type and location of the deposit, it will take 5 to 15 years before full production levels are achieved.

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[1] In the narrower sense defined above

- Highly efficient land and sea transport facilities will have to be established for the exporting of these large quantities of coal. This concern particularly the Western USA, China, Australia and Canada, as well as the potential newcomers.

- The amount of capital required must not be underestimated. The development of one tonne of annual extraction capacity may be calculated as costing $ 100 to $ 150 in capital investment today, including infrastructure and the cost of transport to the consumer. This would mean that between $ 14 000 and $ 42 000 million in capital would be required just for the imports to the Community cited in point 40.

- Such a large increase in world hard coal output would entail manpower problems. The new capacities will be located in sparcely populated areas and carefully trained staff will be needed for many jobs in the mines, particularly for deep mining.

- Finally, environmental regulations concerning coal mining (eg the Surface Mining Control Act in the USA) which are constantly being tightened up, may present a considerable constraint.

42. The coal-importing countries of the Community will also face technical and commercial problems, as a result of the estimated high import volume (see point 27). Although market forces should not be undertestimated, a considerable amount of time and capital will be required for the appropriate measures.

Table 1

Data for an Estimate of Energy Consumption in the Community

Year	1980	1980/90	1990	1990/2000	2000	1980/2000
I. Real gross domestic product						
Annual growth rates (%)		+ 3.6		+ 3.0		+ 3.3
Index (1980 = 100)	100		143		192	
II. Coefficient of elasticity		0,75		0.65		0.7
III. Overall primary energy consumption						
Annual growth rates (%)		+ 2.7		+ 2.0		+ 2.35
Index (1980 = 100)	100		130		159	
mtoe (including bunkers) of which	1 031,9		1 340		1 640	
Oil (mtoe)	561,4		600		580	
Natural gas "	186,7		250		325	
Hydro, geothermal "	33,6		65		55	
Lignite "	26,8		30		30	
Nuclear energy "	39,5		170		275	
Hard coal "	183,9		235		345	
Other (Solar etc.) "	-		10		30	
IV. Hard coal consumption converted into mt (t = t)	304,9		390		580	
V. Shares of the various energy sources (%)						
Total primary energy consumption of which	100		100		100	
Oil	54,4		44,8		35,4	
Natural gas	18,1		18,7		20,1	
Hydro, geothermal	3,3		3,3		3,4	
Lignite	2,6		2,2		1,8	
Nuclear energy	3,8		12,7		16,8	
Hard coal	17,8		17,6		21,0	
Other	-		0,7		1,5	

Table 2

Electricity Supplies in the Community

Year	1980	1980/90	1990	1990/2000	2000
Net electricity generation (TWh)	1 234		2 000		2 800
Annual growth rate (%)		+ 4.9		+ 3.5	
Heat consumption (Kcal per KWh net)	2 410		2 350		2 300
Gross energy equivalent of net electricity general(mtoe)	295		470		640
Sources used (mtoe) :					
Hydro and geothermal energy	30		33		40
Lignite	26		28		30
Petroleum products	69		70		35
Natural gas	28		28		15
Nuclear energy	39		170		275
Hard coal	95		130		320
Other	8		11		15

Table 3

mt (t=t)

Aggregated Coal Balance for the Community for 1980
(Patent fuel and coke converted into coal)
(Estimate)

	Fed. Rep. of Germany	France	Italy	Nether-lands	Belgium	Luxem-bourg	United Kingdom	Ireland	Denmark	Community
Production	93,3	19,5	-	-	8,1	-	122,5	0,1	-	243,5
Receipts from other countries	1,8	9,4	2,7	1,7	5,1	3,1	0,4	0,2	1,0	25,4
Imports from third countries	7,0	21,3	11,7	4,9	5,2	0,4	5,7	6,6	8,9	65,7
Total	102,1	50,2	14,4	6,6	18,4	3,5	128,6	0,9	9,9	334,6
Change in stocks	+ 2,5	-0,8	-	-	-0,2	-	+ 1,0	-	-0,4	+ 2,1
Deliveries into the Community	20,8	1,0	-	0,7	0,6	-	2,3	-	-	25,4
Exports to third countries	3,4	0,5	0,7	0,2	0,6	-	1,0	-	-	6,4
Internal consumption	80,4	47,9	13,7	5,7	17,0	3,5	126,3	0,9	9,5	304,9
Power stations	44,5	25,0	4,3	2,3	5,0	-	90,1	0,1	8,4	179,7
Steel industry	25,2	14,6	7,9	2,8	8,3	3,5	11,2	-	0,1	73,6
Other industries (1)	5,1	4,4	0,8	0,5	2,2	-	8,3	0,1	0,9	22,3
Domestic heating	5,1	4,4	0,4	-	1,8	-	16,3	0,7	0,1	28,8
Other	0,8	-	-	-	-	-	-	-	-	0,8
Statistical difference	- 0,3	-0,5	+0,3	+0,1	-0,3	± 0	+0,4	± 0	± 0	- 0,3

(1) Including the coal industry's own consumption

Table 4

Aggregated Coal Balance for the Community for 1973

(Patent fuel and coke converted into coal)

mt (tce)

	Fed. Rep. of Germany	France	Italy	Nether-lands	Belgium	Luxem-bourg	United Kingdom	Ireland	Denmark	Commu-nity
Production	103,7	25,7	-	1,8	8,8	-	130,2	0,0	-	270,2
Receipts from other Community countries	3,8	11,9	3,1	1,9	5,2	4,5	0,6	0,2	-	31,2
Imports from third countries	5,5	5,4	8,7	2,9	3,6	-	1,4	0,6	3,0	31,1
Total	113,0	43,0	11,8	6,6	17,6	4,5	132,2	0,8	3,0	332,5
Changes in stocks	+ 3,2	+ 3,6	+ 0,1	+0,3	+ 1,4	-	+ 4,3	-	-	+12,9
Deliveries into the Community	23,1	2,0	-	2,2	0,7	-	2,8	-	-	30,8
Exports to third countries	4,9	0,4	0,8	-	0,3	-	0,9	-	-	7,3
Internal consumption	88,2	44,2	11,1	4,7	18,0	4,5	132,8	0,8	3,0	307,3
Power stations	41,0	12,4	0,6	0,7	2,8	-	79,5	0,0	3,0	140,0
Steel industry	28,2	19,0	7,9	3,4	10,5	4,5	16,7	-	-	90,2
Other industries (1)	7,5	5,3	1,3	0,4	1,7	-	12,0	-	-	28,2
Domestic heating	9,5	8,6	1,0	0,5	3,4	-	23,9	0,7	0,0	47,6
Other	2,6	-	0,2	-	-	-	0,1	-	-	2,9
Statistical difference	-0,6	-1,1	+0,1	-0,3	-0,4	± 0	+ 0,6	+0,1	± 0	- 1,6

(1) Including the coal industry's own consumption

Table 5

Coal Consumption in the Community

	mtoe			mt (t = t)[1]		
	1980	1990	2000	1980	1990	2000
Power stations	102.6[3]	130	230	179.7	230	400 <
Steel industry	47.8	55	58	73.6	85	90 ok
Other industry	14.5	30	35	22.3	45	55 guess
Households	18.7	13	6	28.8	20	10
Other[2]	0.3	7	16	0.5	10	25 5p [illegible] for gasification
Total	183.9	235	345	304.9	390	580

[1] 1 toe = 1.75 t (t = t) of power station coal or 1.54 t (t = t) of other coal; figures rounded off.

[2] Including for gasification and liquefaction purposes.

[3] Including changes in stocks and statistical differences.

Table 6

Coal Supply in the Community

mt (t = t)

	1980	1990	2000
Consumption	304.9	390	580 > 450-500
Changes in stocks, exports	4.3	-	-
Imports	65.7	127	280
Community production	243.5	263	300 < 240-250
of which :			
United Kingdom	123.6	140	170
Germany	95.0	105	115
France	18.5	12	10
Belgium	6.4	6	5

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THE COMMUNITY COAL MARKET IN 1980
OUTLOOK FOR 1981

The text of this report generally refers to the Community of Nine. However, various figures especially in the annexes relate to the Community of Ten and/or Greece as indicated. All estimates for 1980 are provisional

I. SUMMARY

In 1980, international attention — as expressed in opinions and detailed studies — focused on the 'renaissance of coal', a development considered necessary for the improvement of world energy supplies.

The main conclusions relate to the expansion of coal production, the need for a three- or five-fold increase in world trade between now and the year 2000, and the stimulation of demand in industrial sectors.

These aspects provide criteria for a short-term picture of the Community coal market. The investment programmes launched by coal producers some years ago, coupled with improved productivity, brought about a reversal in 1979 of the previous trend, increasing output in the two main producing countries and containing the falling rate of extraction in the other two; the total availabilities in the Community (production plus recoveries) have risen to 253 million tonnes for 1980 and will be 247 million tonnes in 1981.

At the same time, the Community's total hard coal requirements are increasing, from 316 million tonnes in 1980 to 319 million tonnes in 1981. The demand in non-producing countries will represent 11 % of the latter figure. Their share of imports from third countries could represent 40 % of a tonnage estimated at 77 million tonnes. These imports remain subject to Community surveillance.

The proportion of total Community requirements met by the availabilities of the coal-producing countries (production plus recoveries) is expected to fall from 79 · 9 % in 1980 to 77 · 4 % in 1981; their share of imports from third countries will increase in absolute terms by two million tonnes.

In 1980, as in 1981, intra-Community trade represents approximately 10 % of the availabilities; the total volume will fall by two million tonnes between 1980 and 1981; it will continue to be of fundamental importance for the Community steel industry and for certain domestic sectors.

The above factors explain why, in a period of a slight upward trend in coal consumption, compared with a marginal drop in total energy consumption and a 2 · 7 % reduction in the demand for oil between 1980 and 1981 — the Community coal industry is concerned with the difficulties facing it, namely:

— an increase in production costs;

— a reduction in disposals to some sectors hit by the recession (e.g. steel with possible repercussions in other sectors (electricity);

— the reservations of potential new customers, particularly in the general industry and domestic sectors;

— an increase in the supply of coal from third countries;

— the protracted weakness of the US dollar which determines the level of revenue from the substantial tonnages of Community coal sold at prices aligned on those of third countries;

— the stockpiling of an excessive proportion of Community output

It may be concluded that any significant and gradual change in the above factors could improve the situation of Community producers; particular attention will have to be paid in the months ahead to supplies from the East European countries and the exchange rate of the US dollar. The other links forged by the Community coal producers or users throughout the coal-supply chain, ranging from production in third countries to distribution in the Community, may make a useful contribution.

The coal policy measures introduced in the Member States in 1980 relate either to Community production or to imports from third countries.

Some of these measures are designed to encourage prospecting and investment in the Community —

including the consumption stage — at the same time as setting limits to the financial support for current operation. Others seek to increase import opportunities in order to widen and diversify the supply base.

In a sector highly sensitive to the slightest change, the progressive nature of these measures and the uncertainty attaching to an assessment of the conditions which will determine the pattern of supply and demand in 1981 make it especially tricky, to make the estimates for this year.

The Commission will request the next Council of Ministers to include the coal situation as an important point on the agenda.

II. GENERAL ECONOMIC SITUATION AND OUTLOOK

(Table 2)

Under the impact of the second oil price shock in less than ten years, economic activity in the Community slowed sharply in 1980, with real gross domestic product growing by only 1·3 % after two and a half years of appreciable growth.

The downturn in activity gathered pace between the two halves of the year. Investment spending had already slumped from its 1979 growth rate in the first half of the year and continued to fall in the second. Consumer spending, which had remainded buoyant in the first half, dropped back in the second. By the end of the year therefore, there was a steep decline in industrial production and unemployment had reached new record levels.

Consumer price rises continued to accelerate over the first half of 1980, although some slowdown became apparent in the course of the year as the initial impact was absorbed, and finally averaged some 12 % for the year as a whole. The Community's current balance of payments has swung from a substantial surplus in 1978 to a large deficit in 1980, partly through a worsening of the terms of trade and partly through a decline in the Community's share of world markets due to a loss of price and cost competitiveness

The labour market situation also deteriorated during 1980. With total employment falling back sharply and the labour force rising rapidly (for demographic reasons), unemployment rose steadily throughout the year and by the end had largely passed the seven million mark, equivalent to 6·6 % of the active civilian population.

Economic growth is expected to recover in the second half of 1981, although the volume of gross domestic product will show, on average for the year, a fall of 0·6 % in comparison to 1980. Severe external and internal constraints will hamper a return to the rates of growth of productive potential experienced in the sixties. The rise in unemployment may continue throughout most of the year and the deficit on current account could increase slightly. Consumer price increases are expected to moderate but, given persistent cost increases, the slowdown of inflation will be only gradual.

III. COAL DEMAND BY SECTOR

1. Steel industry

(Tables 4 to 7)

Having reached a level of 57·4 million tonnes in 1979, coke consumption by the Community steel industry dropped to 53·6 million tonnes in 1980 and is likely to be around 51 million tonnes in 1981.

Almost all the steel industry's coke requirement is for the production of pig iron; with the continuing fall in the amount of fuel oil injected into blast furnaces as a result of the oil price rise and possibly the fact that coke supplies are more secure, the Community's average specific coke consumption per tonne of pig iron rose from 508 kg in 1979 to 514 kg in 1980. Coupled with a slight increase in the pig iron/crude steel ratio, this explains why the consumption of blast-furnace coke fell by only 6·7 % between 1979 and 1980 whereas the drop in crude steel output was 9 % (127·7 million tonnes compared with 140·2 million tonnes).

The situation has varied from one country to another. Whereas in 1980 crude steel output remainded at 1979 levels in France and increased by 9 % in Italy, it fell in all the other countries. The drop was particularly marked in the United Kingdom; following a long strike in the steel industry at the beginning of the year and major restructuring measures, crude steel production fell from 21·5 million tonnes in 1979 to 11·4 million tonnes in 1980, a drop of 10·1 million tonnes or 47 %.

Steel output in the other Community countries in the first half of 1980 was higher than in the equivalent period in 1979. From July onward, falling demand for steel products led to a drop in output. Faced with worsening prospects for the fourth quarter, the Commission took a Decision (No 2794/80/ECSC) on 31 October 1980 (1) recognizing the existence of a period of manifest crisis within the meaning of Article 58 of the ECSC Treaty and establishing a system of steel production quotas for undertakings in the iron and steel industry. This decision applies for the fourth quarter of 1980 and the first two quarters of 1981. The crude steel quotas for the fourth quarter of 1980 are some 20 % below the output level of a reference period based on figures for the period 1977-1979. It is expected that output will fall by about 27 % in the first quarter of 1981. In the second quarter, a level of crude steel production is expected which will bring production for the first half year to about 57 million tonnes. An economic upturn in the steel industry is unlikely until the second half of 1981.

With the same pig iron/crude steel ratio and a specific coke input increasing from 514 to 517 kg, coke consumption for the steel industry as a whole would be 51·3 million tonnes.

2. **Power stations**

(Tables 8 A, B, C and D)

In the three-year period 1979-1981 solid fuels' share of the Community's gross electricity production will have been in the region of 42 % (almost 34 % of it from hard coal), whereas the share of oil and gas will have dropped from 36 % to 32 %; there will have been appreciable increases in nuclear generation, from 11 % to 15 %, with hydro-electricity stable at around 11 %. These changes should be seen against the general background of stockering growth in net electricity production in 1980 (1·5 % over 1979), though the picture will be slightly brighter in 1981, when production is expected to rise by 3·9 % over 1980. This year production should exceed 1 300 TWh.

In the Community as a whole, hard coal consumption in power stations will be 145 million tonnes in 1980 and should rise to 148 million tonnes in 1981 (2). The 1980 figures should also include a further 36 million tonnes of lignite and peat consumption, which can be expected to top 43 million tonnes (2) in 1981 when Greece is added. This would give a total solid fuel consumption of 181 million tonnes for 1980 and 191 million tonnes for 1981.

In 1980 the Nine's public power stations bought 169 million tonnes (t = t) of hard coal, 15 million tonnes up on 1979 and 24 million tonnes up on 1978. However, these increases were not shared equally between Community production and imports from non-member countries — the former accounted for eight million tonnes, or 7 %, over the two years, while the latter rose by 16 million tonnes, or 40 %, over the same period. In 1980 imports will account for 40 million tonnes or almost one-quarter of the Community's total supply. Sales of Community coal to other Community countries have levelled out at just under six million tonnes and are therefore declining in relative terms. Total coal purchases of 173 million tonnes can be expected in 1981.

Between 1978 and 1980 demand for coal by public power stations rose much more sharply in non-producing countries (by 184 % in Italy, 83 % in Denmark and 47 % in the Netherlands) than in coal-producing countries, where increases ranged from 10 to 20 %.

The changes in 1981 are likely to be more varied: a slight drop in the United Kingdom and Germany, stability in France, easing-off in Denmark and Italy, and a more marked increase in Belgium and the Netherlands owing to conversions.

3. **Other industries**

(Tables 3 and 9)

In 1981 hard-coal consumption by this sector could return to the 1979 level of 14 million tonnes following the drop to 13 million tonnes in 1980. Coke consumption is picking up slightly and should reach 4·4 million tonnes in 1981. These figures exclude private electricity generation by industry, which was included in Section 2 above.

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(1) OJ No L 291, 31. 10. 1980, p. 1.

(2) 1 tonne = 29·3 GJ.

The figures for the individual countries show that coal consumption by the United Kingdom will have fallen by over one million tonnes between 1979 and 1981; this can certainly be put down to the general economic situation. Consumption by United Kingdom industry will stand at 5·6 million tonnes in 1981. In France the trend is in the opposite direction, and there has been an increase of 1·6 million tonnes in the last two years. Consumption of 2·8 million tonnes is forecast for 1981, slightly higher than that expected in Germany (2·7 million tonnes). Belgium is also on a rising trend: to 1·9 million tonnes.

Coke consumption in the four main producers and consumers (France, Germany, United Kingdom and Italy) is virtually static.

There is no evidence in the figures of any shift from oil to coal by industrial installations. Although the relative prices of these fuels would seem to dictate such a change it has not spread much beyond the cement and fired-clay industries so far.

4. **Domestic sector**

(Tables 10 A and 10 B)

Domestic and associated coal consumption is still falling by roughly 1·5 million tonnes per year throughout the Community. In 1980 the domestic sector used a total of 27 million tonnes of hard coal, patent fuel and cokes as against 30 million tonnes in 1979. It should not be forgotten that approximately five million tonnes of fuels of lower calorific value, i.e. brown coal briquettes and peat, were also burnt and that consumption of these fuels shows no sign of weakening. At the end of 1980 the Commission approved arrangements for importing 0·3 million tonnes of anthracite in order to help overcome the supply difficulties faced by British consumers while new production units were being constructed in Wales.

In 1981 a close watch should be kept on the possible effects that the cuts in the house-coal supply from Poland and the Soviet Union might have in a number of Member States.

IV. COMMUNITY COAL PRODUCTION

1. **Production statistics**

(a) *Quantitative analysis of output*
(Tables 11 and 12)

Community coal production reached 247 million tonnes in 1980 after remaining at a level of around 239 million tonnes for the previous three years. The eight-million tonne increase from 1979 is due mainly to improved output in the United Kingdom.

For 1981 a fall in output of 0·7 million tonnes will occur in France, corresponding to an annual rate of 4 %. Production in the United Kingdom will probably come back to 125 million tonnes.

Production will remain virtually unchanged in Belgium and the Federal Republic of Germany. The level of output in the Community as a whole will hence again exceed 242 million tonnes.

(b) *Manpower and productivity* (Tables 13 and 14)

Over the three-year period 1970-81, underground manning levels for the Community as a whole were around 353 000. Manpower trends — like those in production — vary from one producer country to another; in Belgium and France manning levels are falling, but they are rising in the Federal Republic of Germany and the United Kingdom.

Owing to heavy investment in rationalization there was an improvement in productivity (expressed in kg/man-hour) in 1980 compared with 1979 in the three Community producer countries, where it is still comparatively low. Continuing investment can be expected to lead to greater productivity in 1981.

2. **Financial developments**

(a) *Costs and proceeds* (Table 15)

The increase in costs in 1980 was due mainly to a general rise in the price of mining equipment and to the fact that wage increases outstripped improvements in productivity. In some countries costs rose faster than the general rate of inflation.

The rate of increase in costs is expected to be slightly lower in 1981.

Proceeds failed to keep pace with costs in 1979 owing to the effect of keen price competition from imported coal (and no longer from liquid fuels). This trend for costs and proceeds to diverge caused a heavy slump in results in 1979 compared with 1978.

In 1980, proceeds generally rose faster than costs, thus preventing a further drop in results. Operating losses levelled off as compared with 1979.

This situation is not likely to change significantly this year.

(b) *Financial intervention by Member States* (Table 16)

In recent years, all coal producers in the Community have required increasing government subsidies but the amount of aid per tonne varies greatly between Member States. Table 16 shows that the subsidies needed by the Belgian coal industry are by far the greatest, while those for the United Kingdom are comparatively small. It should be borne in mind that the levels of subsidies are determined not only by production costs but also by the extent to which Community coal must be sold at prices aligned on the world market or, alternatively, benefits from a protected internal market.

The steep rise over the years in the subsidies granted per tonne produced was halted in 1980 when the level of subsidies was high but stable.

For the Community as a whole, the total subsidies awarded for current production in 1980 under Decisions 73/287/ECSC and 528/76/ECSC amounted to 2 146 million EUA.

3. Developments in production capacity

(a) *Investment in coal mining and preparation* (Table 17)

In 1980, investment in the coal industry reached a record level, with companies undertaking large-scale rationalization programmes (in the Federal Republic of Germany) and developing new production capacity e. g. in the Selby coalfield in the United Kingdom. If price increases relating to capital goods are excluded, there was an increase in investment in the coal industry in real terms in 1980.

This trend will continue in 1981. The amounts shown in table 17, which are lower than those for 1980, relate only to investment already undertaken or approved. If planned investment which may be made in 1981 is included, the nominal volume of investment in 1981 may be as high as 1 500 million for the Community as a whole.

(b) *Pit closures* (Table 18)

Eleven pits were closed in 1980, one more than in 1979, and loss of production capacity fell accordingly from 2·5 million tonnes to 2·1 million tonnes. Five pit closures are scheduled for 1981, bringing a further 1·7 million tonnes loss in production capacity; no forecasts are available for the United Kingdom.

V. COAL PRICES

In view of the importance of fluctuating rates of exchange, the following list showing the movements of the US dollar in relation to the Community currencies will be helpful:

1 US dollar =	Bfrs	Dkr	DM	FF	Lit	Fl	£
3 January 1980	27·77	5·328	1·7055	4·005	799·40	1·888	0·4456
1 April 1980	31·69	6·138	1·9788	4·558	911·95	2·161	0·4682
5 January 1981	31·43	6 005	1·9517	4·521	928·50	2·121	0·416

1. List price developments

(Tables 19 A and 19 B)

Table 19 A shows the listed pithead prices of different types of coal for coalfields on the Continent and a number in Britain in national currencies, while table 19 B gives the figures in US dollars.

In 1980, list prices for Community coal continued to rise at much the same rate as in 1979; the increases ranged from 4 % to 50 %. The price rises took the following form in the Member States:

— *Belgium:*

Two increases — one at the beginning of the year and one in mid-year — ranging in total from 8 % to 19 %, and a 1 % increase on 1 January 1981.

— *Germany:*

An increase of 4 % to 12 % in domestic coal prices on 1 January 1980, followed by an across-the-board increase of 5 % to 18 % on 1 March 1980 and another 6 % to 14 % increase in the second half of the year. In all, this resulted in a 4 % to 27 % increase for the whole year.

— *France:*

Two price rises, on 1 January 1980 and 1 April 1980, totalling 6 % to 26 %.

— *United Kingdom:*

A 10 % increase in the price of industrial coke on 1 January 1980 and a further 15 % to 20 % on industrial coal and 9 % to 27 % on domestic coal on 1 March. Coupled with the price rises which came into effect on 1 to 12 January 1981, this gives a total increase for the year of 18 % to 37 % for industrial coal and 13 % to 50 % for domestic coal.

— *Italy:*

Coke prices were raised by 11 % to 15 % in 1980.

These increases should be set against the higher average revenue in the producing countries (see table 15).

2. Coking coal

(Table 19)

Table 19 shows the movements since 1970 in the 'indicative price' calculated by the Commission on the basis of the average prices, cif ARA of coking coal imported from the United States and Australia. The indicative price rose from US $ 66·30 in October 1979 to not far short of US $ 70 in October 1980, i.e. by 5·5 %.

Naturally, when these prices are converted into Community currencies the picture differs depending on the movement of the currencies against the dollar. Thus in Germany there appears to have been a 10 % increase from DM 115 to DM 127 per tonne, while in the United Kingdom there was a 3 % reduction from £ 30 per tonne to £ 29. By the same token the Community list prices for coking coal in these countries stand at approximately DM 220 and £ 52 respectively.

Loading and unloading delays in certain ports added a further US $ 0·25 to US $ 3·85 per tonne to freight charges for imports over the period from 1 January to 30 September 1980. What is more, the indexation of bunker fuel put a further US $ 0·15 to US $ 1·25 on each tonne of imported coal. These extra costs seemed to be on the increase in the last quarter of 1980 and could rise further in 1981.

3. Steam coal

The average price in US dollars (c.i.f. ABA) for steam coal imported from various countries of origin has increased from 49 US dollars per tonne at the end of 1979 to 70 US dollars at the end of 1980.

The first prices for Community steam coal were between 71 and 99 US dollars at the end of 1979 and between 109 and 125 at the beginning of 1981 (1).

4. Outlook for 1981

In common with other energy prices, coal prices will continue their upward movement both inside and outside the Community. Further narrowing of the gap between coking coal prices and steam coal prices can be expected.

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(1) Prices are on the basis 1 tonne = 29·3 G.J.

VI. COKE

1. Developments in coking capacity

(Table 21)

In 1980 the Community had a coke oven production capacity of around 81 million tonnes, with the average rate of utilization expected to be nearly 84 % — a point higher than in 1979 when the industry had one million tonnes more production capacity. A similar reduction in capacity is expected in 1981. The cuts will be made mainly in the United Kingdom, where 1·3 million tonnes will be lost, and the Netherlands, where repair work will take out 0·5 million tonnes.

Steel industry coke ovens account for 53 % of the total and generally have a higher average rate of utilization than pithead and independent coking plants.

Some 45 % of capacity is 25 years old or older, 36 % less than 10 years old and 13 % was built or modernized within the last five years.

The age distribution varies from region to region; in Scotland and the North of England the replacement of obsolescent steel industry coke ovens means that half of the capacity is now less than ten years old. The geographical location of the plants is also a factor — some 59 % of all the steel industry's coastal coking capacity is less than 10 years old, whereas 63 % of its inland coke ovens are over 25 years old. With reference to ownership; 61 % of all coal-industry and independently owned coke ovens are over 25 years old.

Although the age of coking plants is an important factor, others — such as the future level and location of demand from a for-coke restructured steel industry — must also be taken into account for adjusting coking capacity in the next few years.

2. Coke production and coal supplies to coking plants

(Tables 22 and 23)

Over 66 million tonnes of coke were produced in the Community in 1980. The 0·5 million tonne reduction since 1979 was due to a combination of a sharp fall in the United Kingdom (2·4 million tonnes, or 19 % as a result of the steel strike in the early part of the year) and an upturn in the other Member States. In 1981 production is likely to be slightly lower than the 1980 level, with minor variations from one country to another.

Supplies of Community coal to coking plants totalled 86 million tonnes in 1980, two million tonnes less than in 1979; indigenous supplies fell by three million tonnes, intra-Community trade by one million tonnes. On the other hand, supplies from outside the Community rose by two million tonnes to a total of 24 million tonnes, 28 % of all coking coal delivered.

This trend was particulary marked in the United Kingdom where non-member countries took their share of the market from 12 % to 28 % between 1979 and 1980.

Trade in coke did nothing to make up for this situation: here, too, intra-Community trade dropped by one million tonnes.

The downward trend could be reversed in 1981 if the eastern European countries cut their exports of coking coal to the Community.

VII. TRADE IN COAL AND COKE

1. Intra-Community trade

(Tables 24 and 25)

Between 1979 and 1981 intra-Community trade in coal will have dropped from 17 million to 15 million tonnes, while coke sales will have contracted from seven million to six million tonnes. Intra-Community trade covers approximately 8 % of the Community's coal requirements.

The upswing in coke sales in the first half of 1980 was almost entirely cancelled out by the crisis which hit the steel industry in the second half of the year. The reductions mentioned above were chiefly due to falling exports from the Federal Republic of Germany (traditionally the principal supplier); over the last two years they have fallen by three million tonnes (coal) and one million tonnes (coke). On the other hand, there has been a 1·5 million tonnes increase in the United Kingdom's coal deliveries to the other Member States.

These changes in trade did not affect all members of the Community in the same way. The reduction in German exports to France was the most marked: 2·4 million tonnes less coal and 0·5 million tonnes less coke; supplies to Luxembourg and the Netherlands were not affected. The lion's share of the increased coal exports from the United Kingdom went to Denmark, where imports from the United Kingdom will have risen from 0·2 million tonnes in 1979 to one million tonnes at the end of 1981.

As regards selling price, it is no secret that intra-Community trade does not always cover the producer's costs, particularly with steam coal, which has to compete against imports from non-member countries which are cheaper without subsidies. Therefore any revival of demand in the producing countries, provided it is accompanied by remunerative prices, should normally result in a drop in exports, with their higher freight costs.

On the other side of the coin, the flexibility of Community production could prove vital should other supplies fail.

2. Trade with third countries

(a) *Imports* (Tables 26 and 27)

Another jump in coal imports from third countries was seen in 1980; they were 14·5 million tonnes higher than in 1979, following a 14 million tonnes (31 %) increase between 1978 and 1979. Imports have doubled from 37 million tonnes in 1974 to 74 million tonnes in 1980. Although the 1981 forecasts suggest that the trend will level out slightly in 1981, when there will probably be a 3·4 million tonnes (5 %) increase over 1980, the increase is nonetheless spectacular. The bulk of the increase will be accounted for by steam coal for use in the Community's power stations. Imports of coking coal are expected to fall slightly in 1981 after peaking in 1980.

Import trends vary from year to year and from country to country. The 1980 increases were greatest in France, the United Kingdom and Italy. French and United Kingdom imports are expected to fall slightly in 1981, with Germany taking over following the quote increase.

As for the producing countries, the United States and South Africa shared the increase registered between 1979 and 1980; the former increased its share by 13 million tonnes and the latter by 3·3 million tonnes.

In 1981 the US will consolidate its position as the Community's principal supplier. Only the US can meet the demand for a further four million tonnes, since forecasts suggest that imports from other countries are now levelling off.

The forecasts for 1981 must be reviewed very soon to take account of the shortfall in coal imports from Poland and the Soviet Union in the fourth quarter of 1980 and, probably, part of 1981.

Attempts have been made to make up for the lost supplies by turning to other countries outside the Community, but these efforts could well come up against other constraints or bottlenecks, perhaps in the form of transport problems. Replacement Community supplies are also a possibility, though it is not yet possible to put figures to the various scenarios which might emerge.

This is also the place to mention the problems which arose in connection with coal production and handling at the ports in Australia in August and September 1980. The Community's supply of coking coal was temporarily interrupted and its supply of steam coal was reduced. The long delays in loading at United States east coast ports also add to the bill, and there is no prospect of any appreciable improvement in 1981.

(b) *Exports* (Table 27 B)

The Community exported six million tonnes of coal and coke in 1980, compared with 10 million tonnes in 1979. Most of the exports went to the Federal Republic of Germany's neighbours, the Scandinavian countries and Portugal. Coke accounted for some 80 % of the total. Once German producers had drastically reduced their stocks they put an end to the least profitable branches of their export trade. The outlet offered by the American steel industry in the past has now disappeared.

VIII. COAL AND COKE STOCKS

It should be noted that table 28 giving provisional end-of-year figures of producers' coal and coke stocks is not strictly comparable with tables 29, 30 A and 30 B giving stocks at power stations and colliery stocks broken down by type, treatment and areas at the end of September 1980, the latest available at the time of going to press.

1. Producers' coal and coke stocks

Stocks totalled 39 million tonnes (coke being reckoned at its coal equivalent) at the end of 1979. They can be expected to rise to 50 million tonnes by the end of 1980 and nearly 58 million tonnes by the end of 1981. In absolute terms, stocks will equal, even surpass, the record levels of 1959, 1967 and 1978. In relative terms, they account for a larger proportion of current production (about three month's coal production by the end of 1981).

The build-up of stocks can to a large extent be put down to the fact that 10 million tonnes of coal were added between the end of 1979 and the end of 1980 and a further five million tonnes are expected in 1981. Coke stocks have been increasing by roughly three million tonnes in two years.

The trend towards stockpiling of coal was most evident in the United Kingdom with a seven million tonne, (70 %) increase in 1980 and a further five million expected in 1981.

Germany's coke stocks were low at the end of 1980, though they are expected to rise by 1·7 million tonnes in 1981. Stocks were also up by one million tonnes in the United Kingdom in 1980 but should now remain at that level.

These figures include the German national reserve stockpile: over seven million tonnes of coal and almost three million tonnes of coke, a total of 11 million tonnes of coal equivalent. The producers have to meet only the minimal owning costs.

The growth in United Kingdom producers' stocks, on the other hand, is a direct result of a decline in sales to the steel industry, general industry and power stations and entails financing charges. Unless sales pick up corrective measures might be contemplated.

2. Coal stocks at power stations

On 30 September 1980 power stations had eight million tonnes (26 %) more coal in stock than at the same time in 1979. This meant that stocks had expanded twice as fast as consumption. In all, the total stocks of 41 million tonnes were equivalent to almost three and a half months' consumption. The figures varied from country to country and ranged from one month's average consumption in Italy to six months' supply in Denmark. The situation is therefore much the same as last year.

It is also known that some of the coal in the producers' stocks (see section 1) is earmarked for pithead power stations, notably in France and Germany.

3. Coal and coke stocks at coking plants

Five million tonnes of coal were in stock on 30 September 1980. This represents only a minimal increase over the previous year's level.

Coke stocks, which went from 19 million tonnes at the end of 1978 to only 10 million tonnes at the end of 1979, had risen again by the end of 1980. Although in 1980 there was a further fall in Germany (four hundred thousand tonnes), United Kingdom stocks grew by one million tonnes (40 %).

TABLE 1

Shares of the various forms of primary energy in gross internal energy consumption(¹)

	1979 Actual		1980 (²) Estimates		1981(³) Forecast EUR 9		1981 (³) (⁴) Forecast EUR 10	
	M toe	%	M toe	%	M toe	%	M toe	%
Hard coal	191·6	19·7	190·0	20·4	192·0	20·6	193·0	20·4
Lignite	29·0	3·0	29·0	3·1	29·6	3·2	33·1	3·5
Oil	525·0	54·1	485·0	52·0	472·0	50·8	483·9	51·1
Natural gas	172·4	17·8	170·0	18·3	170·0	18·3	170·0	18·0
Nuclear energy	37·2	3·8	42·8	4·6	51·9	5·6	51·9	5·5
Other	15·1	1·6	15·1	1·6	14·1	1·5	14·4	1·5
Total	970·3	100·0	931·9	100·0	929·6	100·0	946·3	100·0

(¹) Final energy balance (according to Eurostat methodology).
(²) *Source:* Eurostat.
(³) *Source:* Commission services.
(⁴) Including Greece.

TABLE 2

Gross domestic product in real terms

(Variation compared with previous year)

(%)

	1979 Actual	1980 Provisional	1981 Forecast
Belgium	2·4	1·2	−0·7
Denmark	3·5	−0·9	−0·1
Germany	4·6	2·0	−0·7
France	3·2	1·8	0·5
Ireland	1·9	0·8	1·8
Italy	5·0	3·8	−0·8
Luxembourg	3·6	0·4	−1·0
Netherlands	2·2	0·2	−0·6
United Kingdom	1·3	−2·0	−2·0
Community	3·5	1·3	−0·6

Source: Services of the Commission

TABLE 3

Community coal consumption by sector and by Member States

(million tonnes t = t)

	1979 Actual	1980 Estimates	1981 Forecast	% 1980/79	% 1981/80
A. SECTOR					
Power stations	176·3	181·8	185·8	+ 3	+ 2
Coke ovens	87·4	86·5	84·8	− 1	− 2
Iron and steel industry	1·9	1·9	1·9	—	+ 1
Other industries	14·1	13·1	14·1	− 7	+ 7
Domestic heating	20·0	18·4	18·2	− 9	− 1
Patent fuel plants	5·0	4·6	4·4	− 9	− 4
Own consumption at mines	1·9	1·8	1·7	− 8	− 6
Gasworks and others	2·6	2·0	1·4	−22	−30
Statistical difference	1·2	—	0·1	—	—
Total	310·4	310·1	312·4(¹)	—	+ 1(¹)
B. STATE					
Belgium	17·2	16·8	18·1	− 1	+ 8
Denmark	7·1	9·8	10·0	+38	+ 3
Germany	86·8	89·4	92·9	+ 3	+ 4
France	48·5	45·6	46·5	− 6	+ 2
Greece	—	—	0·4	—	—
Ireland	1·2	1·3	1·3	+ 9	—
Italy	14·6	16·6	15·9	+13	− 4
Luxembourg	0·3	0·3	0·3	—	—
Netherlands	4·8	5·9	6·2	+22	+ 5
United Kingdom	129·7	123·4	120·8	− 5	− 2
Total	310·4	310·1	312·4(¹)	—	+ 1(¹)

(¹) Including Greece (estimates).

TABLE 4

Steel and pig iron production

(1 000 tonnes)

	1979 Actual	1980 Provisional	1981 Forecast (¹)	1980/79 %
A. STEEL			Not available	
Belgium/Luxembourg	18 392	16 934		− 8
Denmark	804	734		− 9
Germany	46 040	43 839		− 5
France	23 360	23 170		− 1
Greece	—	—		—
Ireland	72	2		—
Italy	24 250	26 422		+ 9
Netherlands	5 805	5 269		− 9
United Kingdom	21 472	11 384		−47
Community	140 195	127 754		− 9
B. PIG IRON			Not available	
Belgium/Luxembourg	14 676	13 469		− 8
Germany	35 167	33 876		− 4
France	19 415	19 160		− 1
Greece	—	—		—
Italy	11 398	12 212		+ 7
Netherlands	4 813	4 360		− 9
United Kingdom	13 030	6 540		−50
Community	98 499	89 617		− 9

(¹) Not available. The forecast of steel production for the first half year, 1981 is about 57 million tonnes for the Community as a whole.

TABLE 5

Coke rates or specific coke input in blast furnaces

(kg/tonnes)

	1979 Actual	1980 Estimates	1981 Forecast
Belgium	536	545	545
Denmark	—	—	—
Germany	498	515	515
France	512	520	530
Greece	350	350	350
Ireland	—	—	—
Italy	458	455	460
Luxembourg	519	545	550
Netherlands	442	430	430
United Kingdom	578	580	575
Community	509	514	517

TABLE 6

Consumption of coke-oven coke in the iron and steel industry

(1 000 tonnes)

	1979 Actual	1980 Estimates	1981 Forecast	1980/79 %	1981/80 %
Belgium	6 749	6 320	5 740	− 6	− 9
Denmark	29	30	30	—	—
Germany	19 990	19 550	18 620	− 2	− 5
France	11 167	11 325	10 225	+ 1	− 9
Greece	(PM : 275)	(PM : 225)	225	—	—
Ireland	—	—	—	—	—
Italy	6 011	6 820	6 290	+ 13	− 8
Luxembourg	2 287	2 255	2 010	− 1	− 11
Netherlands	2 312	1 940	1 840	− 16	− 5
United Kingdom	9 041	5 310	6 310	− 41	+ 19
Community	57 586	53 550	51 290(1)	− 7	− 4
Used in:					
blast furnaces	50 111	46 695	44 760	− 7	− 4
sintering	7 220	6 580	6 250	− 9	− 5
others	255	275	280	+ 8	—

(1) Including Greece.

TABLE 7

Community coke consumption by sector

(1 000 tonnes)

	1979 Actual	1980 Estimates	1981 Forecast	1980/79 %	1981/80 %
Iron and steel industry	57 586	53 550	51 290	−7	−4
Other industries	4 061	4 293	4 368	+6	+2
Domestic heating	5 170	4 867	4 452	−6	−8
Others	1 250	1 140	1 160	−9	+2
Statistical difference	−69	—	—	—	—
Total	67 998	63 850	61 270	−6	−4

TABLE 8 A

Gross electricity generation

Breakdown by energy sources

	Production general TWh			Breakdown in %			% change	
	Actual	Estimates	Forecast	Actual	Estimates	Forecast		
	1979	1980	1981	1979	1980	1981	1980/79	1981/80
Belgium	52·2	54·5	56·5	4·2	4·3	4·3	+ 4·2	+ 3·8
Denmark	22·2	24·8	25·7	1·8	2·0	1·9	+11·7	+ 3·6
Germany	372·2	375·9	390·5	29·9	29·7	29·7	+ 1·0	+ 3·9
France	241·4	256·2	275·0	19·4	20·2	20·9	+ 6·1	+ 7·3
Ireland	11·0	10·7	11·5	0·9	0·9	0·9	− 2·5	+ 6·7
Italy	181·3	187·8	198·1	14·5	14·8	15·1	+ 3·6	+ 5·5
Luxembourg	1·3	1·3	1·3	0·1	0·1	0·1	− 5·4	+ 3·8
Netherlands	64·5	64·7	66·5	5·2	5·1	5·1	+ 0·4	+ 2·8
United Kingdom	300·0	289·3	289·0	24·0	22·9	22·0	− 3·6	− 0·1
Total	1 246·1	1 265·2	1 314·1	100	100	100	+ 1·5	+ 3·9
Hydroelectric total	124·3	144·7	137·9	11·4	11·4	10·5	+ 1·7	− 4·7
— natural flow	135·6	137·6	129·6	10·9	10·9	9·9	+ 1·5	− 5·8
— pumped storage	6·7	7·1	8·3	0·5	0·5	0·6	+ 6·0	+16·9
Geothermal	2·5	2·6	2·8	0·2	0·2	0·2	+ 4·0	+ 7·7
Nuclear	138·1	159·0	192·5	11·1	12·6	14·7	+15·1	+21·1
Conventional thermal total	963·2	958·9	980·9	77·3	75·8	74·6	− 0·4	+ 2·3
— coal	408·7	430·9	439·6	32·8	34·1	33·4	+ 5·4	+ 2·0
— lignite and peat	99·4	102·5	106·0	8·0	8·1	8·1	+ 3·1	+ 3·4
— oil products	291·9	272·3	280·6	23·4	21·5	21·3	− 6·7	+ 3·0
— natural gas	133·0	122·9	123·8	10·7	9·7	9·4	− 7·6	+ 0·7
— derived gases	23·0	23·0	23·2	1·8	1·8	1·8	− 0·2	+ 0·7
— other fuels	7·1	7·3	7·7	0·6	0·6	0·6	+ 1·6	+ 5·9

TABLE 8 B

Fuel consumption by conventional power plants and coverage of requirements in %

(in Petajoules (10¹⁵) LCV)

	1979 Actual		1980 Estimates		1981 Forecasts (¹)		% change	
	PJ	%	PJ	%	PJ	%	1980/79	1981/80
Belgium								
Coal	113·3	29	121·4	30	150·2	35	+ 7	+24
Lignite	—	—	—	—	—	—	—	—
Oil products	168·6	42	175·9	43	168·0	39	+ 4	− 5
Natural gas	78·2	20	75·3	18	72·6	17	− 4	− 4
Others	36·5	9	36·4	9	36·6	9	—	—
Total	396·6	100	409·0	100	427·4	100	+ 3	+ 4
Denmark								
Coal	151·6	65	203·0	79	212·2	80	+34	+ 4
Oil products	80·0	35	52·4	21	52·3	20	−35	—
Total	231·6	100	255·4	100	264·5	100	+10	+ 4
Germany								
Coal	1 060·3	35	1 111·4	36	1 161·9	36	+ 5	+ 5
Lignite	975·9	32	985·8	32	1 011·0	32	+ 1	+ 3
Oil products	270·5	9	244·6	8	265·9	8	− 9	+ 9
Natural gas	620·9	20	592·3	19	616·4	19	− 5	+ 4
Others	138·3	4	135·6	5	142·8	5	− 2	+ 5
Total	3 065·9	100	3 069·7	100	3 198·0	100	—	+ 4
France								
Coal	570·5	46	562·5	48	580·5	49	− 1	+ 3
Lignite	32·4	3	30·4	2	33·6	3	− 7	+11
Oil products	494·8	40	458·5	39	440·0	37	− 7	− 4
Natural gas	73·5	6	56·4	5	61·4	5	−23	+ 9
Others	69·6	5	70·0	6	68·1	6	+ 1	− 3
Total	1 240·8	100	1 177·8	100	1 183·6	100	− 5	+ 1
Greece	not available							

TABLE 8 B
(Continuation)

(in Petajoules (10^{15}) LCV)

	1979 Actual		1980 Estimates		1981 Forecasts		% change	
	PJ	%	PJ	%	PJ	%	1980/79	1981/80
Ireland								
Coal	1·0	1	1·1	1	1·1	1	+10	—
Peat	26·0	25	22·6	22	24·9	22	−13	+10
Oil products	68·7	66	63·5	62	57·1	52	− 8	−10
Natural gas	7·9	8	15·1	15	27·2	25	+91	+80
Total	103·6	100	102·3	100	110·3	100	− 1	+ 8
Italy								
Coal	94·3	8	136·6	11	143·0	11	+45	+ 5
Lignite	14·1	1	13·0	1	13·0	1	− 8	—
Oil products	916·1	79	940·7	77	1 001·9	77	+ 3	+ 7
Natural gas	100·2	9	99·5	8	95·8	8	− 1	− 4
Others	38·6	3	40·0	3	40·5	3	+ 4	+ 1
Total	1 163·3	100	1 229·8	100	1 294·2	100	+ 6	+ 5
Luxembourg								
Coal	—	—	—	—	—	—	—	—
Oil products	1·8	14	1·7	14	1·9	15	− 6	+12
Natural gas	4·8	37	4·5	36	4·7	36	− 6	+ 4
Others	6·4	49	6·3	50	6·4	49	− 2	+ 2
Total	13·0	100	12·5	100	13·0	100	− 4	+ 4
Netherlands								
Coal	31·0	6	64·3	11	91·4	16	+107	+42
Oil products	199·5	36	222·3	40	242·1	42	+ 11	+ 9
Natural gas	296·1	53	243·0	43	211·5	37	− 18	−13
Others	30·1	5	31·3	6	32·5	5	+ 4	+ 4
Total	556·7	100	560·9	100	577·5	100	+ 1	+ 3
United Kingdom								
Coal	2 063·9	78	2 049·3	83	1 979·1	83	− 1	− 3
Oil products	512·7	20	358·9	15	357·7	15	− 30	—
Natural gas	32·7	1	33·6	1	34·8	1	+ 3	+ 4
Others	23·0	1	23·4	1	21·4	1	+ 2	− 9
Total	2 632·3	100	2 465·2	100	2 393·0	100	− 6	− 3
Community								
Coal	4 086·0	43	4 249·6	46	4 319·4	46	+ 4	+ 2
Peat/Lignite	1 048·5	11	1 051·7	11	1 082·5	11	—	+ 3
Oil products	2 712·9	29	2 518·6	27	2 586·9	27	− 7	+ 3
Natural gas	1 214·3	13	1 119·8	12	1 124·4	12	− 8	—
Others	342·5	4	343·0	4	348·2	4	—	+ 2
Total	9 404·2	100	9 282·7	100	9 461·4	100	− 1	+ 2

TABLE 8 C

Consumption of solid fuels in power plants

(Including autoproducers)

(million tonnes)

	1979 Actual	1980 Estimates	1981 Forecast	1980/79 %	1981/80 %
Belgium					
Coal	5·1	5·6	7·0	+10	+24
Denmark					
Coal	6·1	8·9	9·3	+46	+ 4
Germany					
Coal	43·2	44·5	48·5	+ 4	+ 9
Black lignite	1·5	1·5	1·5	—	—
Lignite	114·5	115·5	118·4	+ 1	+ 3
France					
Coal	25·7	24·6	24·7	− 5	—
Black lignite	1·4	1·5	1·6	+ 7	+16
Lignite	0·9	1·0	1·3		
Greece					
Lignite	(20·8 PM)	(21·0 PM)	21·0	—	—
Ireland					
Peat	2·7	2·4	2·6	−13	+10
Italy					
Coal	3·7	5·4	5·6	+46	+ 5
Lignite	2·2	2·0	2·0	− 8	—
Netherlands					
Coal	1·2	2·2	3·2	+89	+45
United Kingdom					
Coal	91·3	90·5	87·5	− 1	− 3
Community					
Coal	176·3	181·8	185·8	+ 3	+ 2
Black lignite	2·9	3·0	3·1	+ 3	+ 3
Peat and lignite	120·3	120·9	145·3 (¹)	—	+20 (¹)

(¹) Including Greece.

TABLE 8 D

Coal supplies to public power plants

(This table does not include colliery power plants or autoproducers)

(1 000 tonnes)

		National coal	Coal from other ECSC countries	Total ECSC coal	Coal from third countries	Total supplies
Belgium	1978	3 372	304	3 676	704	4 380
	1979	2 339	486	2 825	1 855	4 680
	1980(¹)	2 200	450	2 650	2 600	5 250
Denmark	1978	—	1 080	1 080	4 286	5 366
	1979	—	740	740	5 599	6 339
	1980(¹)	—	800	800	8 900	9 700
Germany(²)	1978	27 494	630	28 124	4 599	32 723
	1979	29 394	708	30 102	5 075	35 177
	1980(¹)	30 550	1 300	31 850	5 250	37 100
France	1978	3 143	3 178	6 321	10 290	16 611
	1979	2 852	2 664	5 516	11 545	17 061
	1980(¹)	2 500	2 550	5 050	13 050	18 100
Greece(³)	1978	..	..	..	..	..
	1979	..	..	..	..	..
	1980(¹)	..	..	..	..	..
Italy	1978	—	46	46	1 927	1 973
	1979	—	—	—	3 212	3 212
	1980(¹)	—	45	45	5 355	5 400
Netherlands	1978	—	387	387	1 119	1 506
	1979	—	266	266	935	1 201
	1980(¹)	—	550	550	1 650	2 200
United Kingdom	1978	80 964	54	81 018	697	81 715
	1979	84 420	73	84 493	1 689	86 182
	1980(¹)	87 425	75	87 500	3 500	91 000
Community	1978	114 973	5 679	120 652	23 622	144 274
	1979	119 005	4 937	123 942	29 910	153 852
	1980(¹)	122 675	5 770	128 445	40 305	168 750
First Forecast for 1981						
Belgium		2 100	425	2 525	4 075	6 600
Denmark		—	1 000	1 000	9 300	10 300
Germany		32 800	1 500	34 300	8 300	42 600
France		2 000	2 000	4 000	13 100	17 100
Ireland		60	—	60	—	60
Italy		—	50	50	5 550	5 600
Netherlands		—	520	520	2 680	3 200
United Kingdom		85 150	50	85 200	2 500	87 700
	Community	122 110	5 545	127 655	45 505	173 160

(¹) Estimates.
(²) Including 'Bergbauverbundkraftwerke'.
(³) Not available.

TABLE 9

Coal and coke-oven coke consumption in general industry (1)

(excluding power plants)

(1 000 tonnes)

	1979 Actual	1980 Estimates	1981 Forecast	1980/79 %	1981/80 %
Belgium	1 736	2 045	2 065	+18	+ 1
Denmark	813	845	745	+ 4	−12
Germany	4 515	3 870	4 200	−14	+ 8·5
France	2 486	2 750	3 850	+10	+40·0
Greece	. .	. .	30	—	—
Ireland	60	55	55	− 8	—
Italy	1 261	580	600	−54	+ 3
Luxembourg	5	3	3	−40	—
Netherlands	215	425	425	+95	—
United Kingdom	7 035	6 850	6 500	− 3	− 5
Community	18 126	17 423	18 473	− 4	+ 6

(1) Coke-oven coke assigned a value of unity.

TABLE 10 A

Deliveries of coal, patent fuel and coke for domestic heating

(including issues to workers)

(1 000 tonnes)

		1979 Actual	1980 Estimates	1981 Forecast	1980/79 %	1981/80 %
Belgium	Coal	1 610	1 422	1 513	− 12	+ 6
	Patent fuel	220	135	100	− 39	− 26
	Coke	27	30	30	− 11	—
	Total	1 857	1 587	1 643	− 15	+ 4
Denmark	Coal	12	20	20	+ 67	—
	Coke	23	20	20	− 30	—
	Total	35	40	40	+ 14	—
Germany	Coal	1 430	1 330	1 330	− 7	—
	Patent fuel	1 296	1 200	1 200	− 7	—
	Coke	1 964	1 900	1 600	− 3	− 16
	Total	4 690	4 430	4 130	− 6	− 7
France	Coal	2 938	2 450	2 210	− 17	− 10
	Patent fuel	2 326	2 125	1 975	− 9	− 7
	Coke	281	250	240	− 11	− 4
	Total	5 545	4 825	4 425	− 13	− 8
Greece	Coal	..	..	5	—	—
	Coke	..	..	10	—	—
	Total	..	..	15	—	—
Ireland	Coal	1 100	1 200	1 200	+ 9	—
	Coke	—	—	—	—	—
	Total	1 100	1 200	1 200	+ 9	—
Italy	Coal	150	150	150	—	—
	Patent fuel	11	10	10	− 9	—
	Coke	175	160	145	− 9	− 9
	Total	336	320	305	− 5	− 5
Luxembourg	Coal	5	5	5	—	—
	Patent fuel	1	1	1	—	—
	Coke	2	2	2	—	—
	Total	8	8	8	—	—
Netherlands	Coal	166	300	200	+ 81	− 33
	Patent fuel	20	20	20	—	—
	Coke	1	5	5	+ 400	—
	Total	187	325	225	+ 74	− 31
United Kingdom	Coal	12 494	11 500	11 600	− 8	+ 1
	Patent fuel	954	925	925	− 3	—
	Coke	2 697	2 500	2 400	− 7	− 4
	Total	16 145	14 925	14 925	− 8	—
Community	Coke	19 905	18 377	18 233 (1)	− 8	− 1
	Patent fuel	4 828	4 416	4 231	− 9	− 4
	Coke	5 170	4 867	4 452 (1)	− 6	− 6
	Total	29 903	27 660	26 916 (1)	− 8	− 3

(1) Including Greece.

TABLE 10 B

Deliveries of peat and lignite for domestic heating

(including issues to workers)

(1 000 tonnes)

	1979 Actual	1980 Estimates	1981 Forecast	Difference in %	
				1980/79	1981/80
Belgium					
Lignite briquettes	33	30	30	– 9	—
Denmark					
Lignite briquettes	—	—	—	—	—
Germany					
Lignite briquettes	3 721	3 600	3 800	– 3	+ 5
France					
Lignite briquettes	176	175	175	—	—
Black lignite	65	65	65	—	—
Greece					
Lignite briquettes	(PM 95)	(PM 90)	90	—	—
Ireland					
Peat	571	570	570	—	—
Peat briquettes	307	310	310	—	—
Italy					
Lignite briquettes	50	50	50	—	—
Black lignite	25	25	25	—	—
Luxembourg					
Lignite briquettes	45	45	45	—	—
Netherlands					
Lignite briquettes	3	—	—	—	—
United Kingdom					
Lignite briquettes	—	—	—	—	—
Community	4 996	4 870	5 160 (1)	– 3	– 6

(1) Including Greece.

NB: Average calorific value of these fuels:

Peat	13 800 kJ/kg
Peat briquettes	18 640 kJ/kg
Lignite briquettes	20 000 kJ/kg
Black lignite	
— French	18 750 kJ/kg
— Italian	19 500 kJ/kg

TABLE 11

Hard coal production by areas

(1 000 tonnes)

	1979 Actual	1980 Provisional	1981 Forecast
Kempen	5 614	5 948	6 000
Sud	511	377	250
Belgium	6 125	6 325	6 250
Ruhr	75 236	76 117	74 500
Aachen	5 334	5 399	5 550
Niedersachsen	2 333	2 276	2 300
Saar	9 888	10 128	10 700
Kleinzechen	521	540	525
Germany	93 312	94 460	93 575
National statistics	(85 799)	(86 550)	86 200
Nord - Pas de Calais	5 387	4 470	3 850
Lorraine	9 595	9 809	10 000
Centre - Midi	3 630	3 857	3 600
France	18 611	18 136	17 450
Ireland	60	60	60
Scotland	8 148	8 115	..
North	13 500	14 654	..
Yorkshire	30 979	31 001	..
North-West	10 949	11 344	..
Midlands/Kent	35 909	38 296	..
South Wales	7 709	7 814	..
Licensed mines	900	1 142	..
Opencast	12 543	15 242	15 000
United Kingdom	120 637	128 208	125 000
Community	238 745	247 189	242 335

TABLE 12

Hard coal production in Terajoules (¹)

	10^3 tonnes	TJ	kJ/kg
1979 (actual)			
Belgium	6 125	165 685	27 050
Germany	93 312	2 565 287	27 520
France	18 611	477 437	25 650
Ireland	63	1 333	21 160
United Kingdom	120 637	2 931 600	24 300
Community	238 748	6 141 342	25 725
1980 (provisional)			
Belgium	6 325	171 091	27 050
Germany	94 460	2 599 539	27 520
France	18 136	465 188	25 650
Ireland	60	1 270	21 160
United Kingdom	128 208	3 155 746	24 300
Community	247 189	6 352 834	25 750

(¹) 10^{12} Joules.

TABLE 13

Personnel employed underground

(yearly average in 1 000s)

	1979 Actual	1980 Provisional	1981 Forecast	Changes 1980/79		Changes 1981/80	
				1 000	%	1 000	%
Belgium	17·0	16·4	15·0	−0·6	−3·5	−1·4	−8·5
Germany	119·4	121·6	124·0	+2·2	+1·8	+2·4	+2·0
France	33·1	30·4	28·0	−2·7	−8·2	−2·4	−7·9
United Kingdom	185·0	184·0	185·0	−1·0	−0·5	+1·0	+0·5
Community(1)	354·9	352·8	352·4	−2·2	−0·6	−0·4	−0·1

(1) Including 0·4 in Ireland.

TABLE 14

Output per man/hour

	kg/man/hour			% change	
	1979 Actual	1980 Provisional	1981 Forecast	1980/79	1981/80
Belgium	276	279	283	+1·1	+1·4
Germany	546	539	560	−1·3	+3·9
France	337	352	370	+4·5	+5·1
United Kingdom	373	382	395	+2·4	+3·4

TABLE 15

Production costs and revenue per tonne

(Variation according to data supplied in national currencies)

(%)

	Production costs		Revenue	
	1979/78 Actual	1980/79 Provisional	1979/78 Actual	1980/79 Provisional
Belgium	+11·0	+ 7·5	− 3·0	+ 9·0
Germany	+ 5·8	+ 8·6	+ 3·8	+ 8·4
France	+11·8	+ 8·0	+14·7	+12·5
United Kingdom	+18·8	+16·1	+16·4	+17·0

TABLE 16

State aids to the coal industry for current production

(EUA/tonne produced)

	Direct aids (¹)		Indirect aids		Total	
	1979	1980 (²)	1979	1980 (²)	1979	1980 (²)
Belgium	45·49	45·68	3·16	1·65	48·65	47·33
Germany	10·89	11·67	0·10	0·08	10·98	11·75
France	25·31	25·26	0·35	0·38	25·66	25·64
United Kingdom	2·31	2·32	—	—	2·31	2·32
Community	8·55	8·77	0·15	0·10	8·70	8·87

(¹) Including coking-coal aids.
(²) Provisional.

TABLE 17

Investments in coal

production and preparation

(million EUA)

	1979 Actual	1980 Estimates	1981 (1) Forecasts
Belgium	24·6	37·8	. .
Germany	277·3	408·4	335·1
France	39·5	44·0	39·5
United Kingdom	825·6	871·4	782·4
Community	1 167·0	1 361·6	1 157·0

(1) Excluding investments not formally decided or engaged.

TABLE 18

Pit closures

	1980		1981	
	Number	Previous year's output (1 000 tonnes)	Number	Previous year's output (1 000 tonnes)
Belgium				
— Sud	2	171	1 (1)	320 (1)
Germany				
— Ruhr	1	477	1	1 118
France				
— Nord/Pas-de-Calais	2	640 (2)	—	—
— Centre-Midi	—	—	3	293
United Kingdom				
— North	1	377		
— Scottish	1	22		
— North-East	2	271		
— South Wales	2	177		
	6	847	. .	. .
	11	2 135	5	1 731 (3)

(1) Decision of closures has been suspended.

(2) One pit closed in December 1979 but not reported in the foregoing report.

(3) Total including United Kingdom.

TABLE 19 A

Listed pithead prices for Community coal at 15 January ~~1980, 1 April 1980 and 15 January~~ 1981

Category	Type	Date	Ruhr DM	Aachen DM	Saar DM	Belgium Bfrs	Nord FF	Lorraine FF	South Wales £	Scotland £	South Yorkshire £
Anthracite	Nuts 3 20/30 mm	15. 1. 1980	259·00	—	—	4 900	670·00	—	51·10	—	—
		1. 4. 1980	283·00	—	—	4 900	752·00	—	58·30	—	—
		15. 1. 1981	298·00	—	—	5 500	752·00	—	76·50	—	—
Lean coal	Nuts 3 20/30 mm	15. 1. 1980	242·00	263·00	—	4 750	—	—	43·60	—	—
		1. 4. 1980	266·00	263·00	—	—	—	—	50·50	—	—
		15. 1. 1981	281·00	309·00	—	—	—	—	64·70	—	—
Semi-bituminous	Nuts 4 10/20 mm	15. 1. 1980	196·50	241·00	—	—	—	—	—	—	—
		1. 4. 1980	229·50	241·00	—	—	—	—	—	—	—
		15. 1. 1981	249·00	302·00	—	—	—	—	—	—	—
Long flame	Nuts 2 30/50 mm	15. 1. 1980	183·00	—	206·00	3 050	—	395·00	—	38·50	36·60
		1. 4. 1980	210·50	—	224·00	3 050	—	434·00	—	46·70	44·40
		15. 1. 1981	230·50	—	230·00	3 350	—	434·00	—	52·00	49·50
Long flame	Nuts 5 6/10 mm	15. 1. 1980	185·00	—	204·00	2 850	—	381·00 (2)	—	37·40	35·50
		1. 4. 1980	210·50	—	—	2 850	—	419·00 (2)	—	44·90	43·60
		15. 1. 1981	230·50	—	—	3 250	—	419·00 (2)	—	50·10	48·40
Coking coal	Medium or high volatile	15. 1. 1980	187·00	197·00	204·00	2 650	—	385·00	44·00	42·40	38·00
		1. 4. 1980	207·50	216·00	221·00	2 650	—	385·00	50·60	47·50	42·90
		15. 1. 1981	217·00	238·00	227·00	3 048	—	385·00	51·80	—	—
Coke	Blast furnace H. F. >40 mm	15. 1. 1980	292·00	291·00	315·00	3 850 (1)	550·00	562·00	87·50	86·40	85·80
		1. 4. 1980	324·50	319·00	345·00	4 250	583·00	613·00	87·50	86·40	85·80
		15. 1. 1981	334·00	352·50	359·00	4 250	583·00	613·00	87·50	86·40	85·80

(1) Carcoke.
(2) Power stat.: 410·00—428·00.

TABLE 19 B

Listed pithead prices for Community coal at 15 January 1980, 1 April 1980 and 15 January 1981

(US $ (¹) (²))

Category	Type	Date	Ruhr	Aachen	Saar	Belgium	Nord	Lorraine	South Wales	Scotland	South Yorkshire	Lowest price	Highest price	Difference %
Anthracite	Nuts 3 20/30 mm	15. 1. 1980	151·86	—	—	176·45	167·29	—	114·68	—	—	114·68	176·45	53·9
		1. 4. 1980	143·02	—	—	154·62	164·98	—	124·52	—	—	124·52	164·98	32·5
		15. 1. 1981	152·69	—	—	176·54	166·33	—	183·89	—	—	152·69	183·89	20·4
Lean coal	Nuts 3 20/30 mm	15. 1. 1980	141·89	154·21	—	171·05	—	—	97·84	—	—	97·84	171·05	74·8
		1. 4. 1980	134·42	132·91	—	—	—	—	107·86	—	—	107·86	134·42	24·6
		15. 1. 1981	143·98	158·32	—	—	—	—	155·53	—	—	143·98	155·53	8·0
Semi bituminous	Nuts 4 10/20 mm	15. 1. 1980	115·22	141·31	—	—	—	—	—	—	—	115·22	141·31	22·6
		1. 4. 1980	115·98	121·79	—	—	—	—	—	—	—	115·98	121·79	5·0
		15. 1. 1981	127·58	154·74	—	—	—	—	—	—	—	127·58	139·88	9·6
Long flame	Nuts 2 30/50 mm	15. 1. 1980	107·30	—	120·79	109·83	—	98·63	—	86·39	82·13	82·13	120·79	47·1
		1. 4. 1980	106·38	—	113·20	96·24	—	95·22	—	99·74	94·82	94·82	113·20	19·4
		15. 1. 1981	118·10	—	117·85	106·56	—	96·00	—	125·00	118·99	96·00	125·00	30·2
Long flame	Nuts 5 6/10 mm	15. 1. 1980	108·47	—	119·61	102·63	—	95·13 (³)	—	83·93	79·66	79·66	119·61	50·2
		1. 4. 1980	106·38	—	—	89·93	—	91·93 (⁴)	—	95·90	93·12	89·93	106·38	18·3
		15. 1. 1981	118·10	—	—	103·38	—	92·68 (⁵)	—	120·43	116·35	92·68	120·43	29·9
Coking coal	Medium or high volatile	15. 1. 1980	109·65	115·51	119·61	95·43	—	96·13	98·74	95·15	85·27	85·27	119·61	40·3
		1. 4. 1980	104·86	109·16	111·68	83·62	—	84·47	108·07	101·45	91·61	83·62	111·68	39·6
		15. 1. 1981	111·19	121·94	116·31	96·96	—	85·16	124·52	—	—	85·16	124·52	46·2
Coke	Blast furnace H. F. >40 mm	15. 1. 1980	171·21	170·62	184·70	138·64	137·33	140·32	196·36	193·88	192·54	137·33	196·36	43·0
		1. 4. 1980	163·99	161·21	174·35	134·11	127·91	134·49	186·89	184·54	183·23	127·91	186·89	46·1
		15. 1. 1981	171·13	180·61	183·94	135·19	128·95	135·59	210·34	207·69	206·25	128·95	210·34	63·1

(¹) Dollar exchange rate:

	DM	Index	Bfrs	Index	FF	Index	£	Index
3. 1. 1980	1·7055	100	27·77	100	4·005	100	0·4456	100
1. 4. 1980	1·9788	116	31·69	114	4·558	114	0·4682	105
5. 1. 1981	1·9517	114	31·43	113	4·521	113	0·416	93

(²) Prices are not adjusted for quality differences.

(³) Power stat. 102·37—106·87 $/tonne.

(⁴) Power stat. 89·95— 93·90 $/tonne.

(⁵) Power stat. 90·69— 94·67 $/tonne.

TABLE 20

Average cif prices for steam coal imported from third countries as reported by the Member States

	1st quarter 1977	1st quarter 1978	1st quarter 1979	1st quarter 1980	2nd quarter 1980	3rd quarter 1980
A. *Steam coal* (1) In EUA/TJ (2) (3)						
Maximum	1 455	1 249	1 105	1 451	1 579	1 563
Average	1 046	1 054	1 020	1 258	1 403	1 426
Minimum	1 010	978	953	1 132	1 289	1 328
In $/tonne						
Maximum	41·3	38·9	40·0	55·6	56·0	57·5
Average	30·4	33·1	34·9	46·4	48·5	51·7
Minimum	28·6	30·0	32·7	41·0	43·6	48·0
B. *Coking coal* (4)						
In $/tonne	61·6	62·1	63·9	68·5	69·0	69·2

(1) As per quarterly reports of member countries (Decision No 77/707) ECSC 7. 11. 1977.

(2) 1 Terajoule = 34·12 tec or 23·89 tep.

(3) Rounded up to nearest whole figure.

(4) Indicative price (Decision No 73/287/ECSC of 25. 7. 1973) reference date: beginning of quarter.

TABLE 21

Coke-oven coke production capacity

(million tonnes)

	Belgium	Germany	France	Italy	Nether-lands	United Kingdom	Community
1979 (Actual)							
Colliery plants	—	22·1	5·8	—	—	4·1	32·0
Iron and steel industry	6·9	9·1	6·6	9·0	2·5	9·0	43·1
Independent	0·1	—	—	2·5	0·6	3·0	6·2
Total	7·0	31·2	12·4	11·5	3·1	16·1	81·3
(of which coastal coking plant)	(1·5)	(0·4)	(4·2)	(11·5)	(3·1)	(8·0)	(28·7)
1980 (Provisional)							
Colliery plants	—	22·2	5·8	—	—	4·3	32·3
Iron and steel industry	6·9	9·1	6·2	9·0	2·0	8·4	41·6
Independent	0·1	—	—	2·5	0·6	3·0	6·2
Total	7·0	31·3	12·0	11·5	2·6	15·7	80·1
(of which coastal coking plant)	(1·5)	(0·4)	(4·2)	(11·5)	(2·6)	(7·8)	(28·0)
1981 (Forecasts)							
Colliery plants	—	21·8	5·8	—	—	3·3	30·9
Iron and steel industry	6·9	9·1	6·3	9·0	2·0	8·5	41·8
Independent	0·1	—	—	2·5	0·6	3·0(¹)	6·2
Total	7·0	30·9	12·1	11·5	2·6	14·8	78·9
(of which coastal coking plants)	(1·5)	(0·4)	(4·2)	(11·5)	(2·6)	(7·8)	(28·0)

(¹) Including LTC.

TABLE 22

Coke-oven coke

(1 000 tonnes)

	Coal deliveries to coking plants	Production of coke-oven coke	
		1 000 tonnes	Variation in % versus the previous year
1979 (Actual)			
Belgium	8 442	6 451	+ 12
Germany	34 037	26 697	+ 4
France	14 306	11 615	+ 9
Italy	10 243	7 501	+ 2
Netherlands	3 469	2 530	+ 5
United Kingdom	16 876	12 511	+ 1
Community	87 373	67 305	+ 5
1980 (Estimates)			
Belgium	7 800	6 034	− 7
Germany	36 950	8 665	+ 7
France	14 300	11 201	− 4
Italy	10 800	8 303	+ 11
Netherlands	3 175	2 443	− 3
United Kingdom	13 500	10 080	− 19
Community	86 525	66 726	− 1
1981 (Forecasts)			
Belgium	7 620	5 900	− 2
Germany	36 750	28 400	− 1
France	13 470	10 900	− 3
Greece	260	200	. .
Italy	9 900	7 600	− 8
Netherlands	2 550	1 950	− 20
United Kingdom	14 300	10 950	+ 8
Community	84 850	65 900	− 1

TABLE 23

Coal supplies to coke ovens

(1 000 tonnes)

	National coal	Coal from other ECSC countries	Total ECSC coal	Coal from third countries	Total supplies
Belgium					
1978	3 821	1 806	5 627	1 726	7 353
1979	3 826	1 297	5 123	3 179	8 302
1980 (¹)	3 800	700	4 500	3 450	7 950
Germany					
1978	32 631	100	32 731	27	32 758
1979	33 922	148	34 070	309	34 379
1980 (¹)	36 720	140	36 860	440	37 300
France					
1978	5 721	3 362	9 083	3 943	13 026
1979	5 542	3 468	9 010	5 478	14 488
1980 (¹)	4 620	2 780	7 400	6 000	13 400
Greece					
1978	—	—	—	—	—
1979	—	—	—	—	—
1980 (¹)	—	—	—	—	—
Italy					
1978	—	2 568	2 568	7 719	10 287
1979	—	2 140	2 140	7 857	9 997
1980 (¹)	—	2 635	2 635	8 165	10 800
Netherlands					
1978	—	801	801	2 292	3 093
1979	—	634	634	2 869	3 503
1980 (¹)	—	600	600	2 125	2 725
United Kingdom					
1978	14 794	198	14 992	1 142	16 134
1979	14 900	100	15 000	2 000	17 000
1980 (¹)	9 900	50	9 950	3 800	13 750
Community					
1978	56 967	8 835	65 802	16 849	82 651
1979	58 190	7 787	65 977	21 692	87 669
1980 (¹)	55 040	6 905	61 945	23 980	85 925
First forecast for 1981					
Belgium	3 650	700	4 350	3 270	7 620
Germany	35 850	150	36 000	750	36 750
France	5 025	2 435	7 460	6 010	13 470
Greece	—	—	—	260	260
Italy	—	2 200	2 200	7 700	9 900
Netherlands	—	635	635	1 915	2 550
United Kingdom	10 470	30	10 500	3 800	14 300
Community	54 995	6 150	61 145	23 905	84 850

(¹) Estimates.

TABLE 24

Trend of intra-Community trade in coal

(1 000 tonnes)

To / From	Belgium	Denmark	Germany	France	Greece	Ireland	Italy	Luxembourg	Netherlands	United Kingdom	Total
Belgium											
1979	—	—	3 415	64	—	—	—	—	—	242	3 721
1980	—	—	2 460	40	—	—	—	—	225	240	2 965
1981	—	—	2 350	40	—	—	—	—	225	165	2 780
Denmark											
1979	—	—	599	—	—	—	—	—	—	245	844
1980	—	—	150	—	—	—	—	—	—	850	1 000
1981	—	—	—	—	—	—	—	—	—	1 000	1 000
Germany											
1979	156	—	—	316	—	—	—	—	—	724	1 196
1980	320	—	—	250	—	—	—	—	150	1 080	1 800
1981	375	—	—	300	—	—	—	—	200	1 125	2 000
France											
1979	101	—	6 746	—	—	—	—	—	—	791	7 638
1980	55	—	5 245	—	—	—	—	—	—	1 050	6 350
1981	75	—	4 335	—	—	—	—	—	—	1 015	5 425
Greece											
1979	—	—	—	—	—	—	—	—	—	—	—
1980	—	—	—	—	—	—	—	—	—	—	—
1981	—	—	30	20	—	—	—	—	—	—	50
Ireland											
1979	—	—	3	—	—	—	—	—	—	155	158
1980	—	—	—	—	—	—	—	—	—	200	200
1981	—	—	—	—	—	—	—	—	—	220	220
Italy											
1979	5	—	1 924	14	—	—	—	—	—	15	1 958
1980	5	—	2 635	15	—	—	—	—	—	45	2 700
1981	5	—	2 185	40	—	—	—	—	—	40	2 270
Luxembourg											
1979	5	—	147	7	—	—	—	—	—	16	175
1980	5	—	140	10	—	—	—	—	—	25	180
1981	—	—	120	10	—	—	—	—	—	50	180
Netherlands											
1979	5	—	1 221	21	—	—	—	—	—	84	1 331
1980	30	—	1 100	20	—	—	—	—	—	150	1 300
1981	—	—	1 220	—	—	—	—	—	—	150	1 370
United Kingdom											
1979	44	—	229	—	—	55	—	—	—	—	328
1980	—	—	60	—	—	—	—	—	—	—	60
1981	—	—	100	—	—	—	—	—	—	—	100
Community											
1979	316	—	14 284	422	—	55	—	—	—	2 272	17 349
1980	415	—	11 790	335	—	—	—	—	375	3 640	16 555
1981	455	—	10 340	410	—	—	—	—	425	3 765	15 395

Note: 1979 Actual.
1980 Estimates.
1981 Forecasts.

TABLE 25

Trend of intra-Community trade in coke-oven coke

(1 000 tonnes)

To \ From	Belgium	Denmark	Germany	France	Greece	Ireland	Italy	Luxembourg	Netherlands	United Kingdom	Total
Belgium											
1979	—	—	964	135	—	—	—	—	163	41	1 303
1980	—	—	850	40	—	—	—	—	150	60	1 100
1981	—	—	500	40	—	—	—	—	100	60	700
Denmark											
1979	1	—	38	83	—	—	—	—	—	5	127
1980	—	—	20	75	—	—	—	—	—	5	100
1981	—	—	20	75	—	—	—	—	—	5	100
Germany											
1979	93	—	—	286	—	—	—	—	149	83	611
1980	90	10	—	250	—	—	—	—	100	140	590
1981	60	—	—	300	—	—	—	—	140	100	600
France											
1979	157	—	2 030	—	—	—	19	—	109	7	2 322
1980	180	—	2 265	—	—	—	25	—	260	20	2 750
1981	125	—	1 580	—	—	—	25	—	200	20	1 950
Greece											
1979	—	—	—	—	—	—	—	—	—	—	—
1980	—	—	—	—	—	—	—	—	—	—	—
1981	—	—	35	—	—	—	15	—	—	—	50
Ireland											
1979	—	—	—	—	—	—	—	—	—	31	31
1980	—	—	—	—	—	—	—	—	—	30	30
1981	—	—	—	—	—	—	—	—	—	30	30
Italy											
1979	—	—	27	69	—	—	—	—	—	—	96
1980	—	—	30	10	—	—	—	—	—	40	80
1981	—	—	40	—	—	—	—	—	—	—	40
Luxembourg											
1979	3	—	2 172	—	—	—	—	—	—	5	2 180
1980	20	—	2 240	—	—	—	—	—	—	—	2 260
1981	5	—	2 010	—	—	—	—	—	—	—	2 015
Netherlands											
1979	2	—	568	28	—	—	—	—	—	7	605
1980	10	—	600	20	—	—	—	—	—	10	640
1981	10	—	535	10	—	—	—	—	—	90	645
United Kingdom											
1979	1	—	24	6	—	—	—	—	—	—	31
1980	—	—	5	5	—	—	—	—	—	—	10
1981	—	—	5	5	—	—	—	—	—	—	10
Community											
1979	257	—	5 823	607	—	—	19	—	421	179	7 306
1980	300	10	6 010	400	—	—	25	—	510	305	7 560
1981	200	—	4 725	430	—	—	40	—	440	305	6 140

Note: 1979 Actual.
1980 Estimates.
1981 Forecasts.

TABLE 26

Import of coal from third countries

(million tonnes)

	1979 Actual	1980 Estimate	1981 Forecast
A. *By country of destination*			
Belgium	5·9	7·3	8·1
Denmark	6·7	9·1	10·1
Germany	6·9	7·3	9·5
France	19·5	22·6	22·3
Greece	(PM : 0·4)	(PM : 0·5)	0·3
Ireland	0·9	1·0	1·1
Italy	11·2	13·8	13·6
Luxembourg	0·2	0·2	0·2
Netherlands	3·8	5·0	5·3
United Kingdom	4·1	7·3	6·5
Community	59·1	73·6	77·0
B. *By country of origin*			
USA	14·7	27·9	28·3
Canada	0·9	0·7	0·6
Australia	8·0	7·9	8·9
South Africa	15·9	19·3	20·0
Poland	15·3	13·7	14·4
USSR	2·8	2·6	3·7
Others	2·0	1·5	1·1
Total	59·1	73·6	77·0
C. *By sector of consumption*			
Steam coal	31·4	42·5	49·9
Coking coal	24·0	28·9	24·8
Others	3·7	2·2	2·3
Total	59·1	73·6	77·0

TABLE 27 A

Import of coal from third countries — 1980

(Estimation)

(1 000 tonnes)

	USA	Canada	Australia	South Africa	Poland	USSR	Others	Total
Belgium	4 155	—	257	2 048	584	216	77	7 337
Denmark	1 336	204	363	3 192	3 423	397	146	9 061
Germany	2 231	436	578	1 463	1 948	199	410	7 265
France	7 473	—	1 646	9 182	3 449	781	84	22 615
Ireland	350	—	—	50	600	—	—	1 000
Italy	6 000	25	1 300	3 000	2 200	1 000	275	13 800
Luxembourg	150	—	—	50	—	—	—	200
Netherlands	2 600	—	950	200	1 050	—	200	5 000
United Kingdom	3 653	—	2 847	67	446	45	276	7 334
Community	27 948	665	7 941	19 252	13 700	2 638	1 468	73 612

TABLE 27 B

Exports to third countries

(1 000 tonnes)

	1977	1978	1979	1980	1981
	Actual			Estimates	Forecast
A. *Coal*					
Belgium	35	40	66	70	60
Germany	1 612	2 710	1 428	800	460
France	32	58	101	50	70
Netherlands	—	—	—	—	100
United Kingdom	117	135	205	300	400
Total	1 796	2 943	1 800	1 220	1 090
B. *Coke*					
Belgium	41	52	592	450	400
Denmark	54	53	46	40	50
Germany	2 906	5 389	5 282	1 600	900
France	308	384	947	300	145
Ireland	24	26	40	40	40
Italy	553	680	652	700	665
Netherlands	62	209	196	100	200
United Kingdom	640	743	695	950	905
Total	4 588	7 536	8 450	4 180	3 305

TABLE 28

Community producers' stocks

A. *Stocks of coal*

(1 000 tonnes)

	End of 1979 Actual	End of 1980 Provisional	End of 1981 Forecast	Difference	
				1980/79	1981/80
Belgium	150	164	164	+ 14	—
Germany (¹)	12 236	13 200	13 200	+ 964	—
France	3 836	5 625	5 625	+ 1 789	—
Ireland	30	30	30	—	—
United Kingdom	10 245	17 254	22 289	+ 7 009	+ 5 035
Community	26 497	36 273	41 308	+ 9 776	+ 5 035

B. *Stocks of coke-oven coke*

(1 000 tonnes)

	End of 1979 Actual	End of 1980 Provisional	End of 1981 Forecast	Difference	
				1980/79	1981/80
Belgium	108	160	270	+ 52	+ 110
Germany (¹)	6 820	6 292	8 047	− 528	+ 1 755
France	535	630	1 205	+ 95	+ 575
Greece	—	—	..	..	..
Italy	422	550	560	+ 128	+ 10
Netherlands	22	50	50	+ 28	
United Kingdom	1 965	2 900	2 865	+ 935	− 35
Community	9 872	10 582	12 997	+ 710	+ 2 415

C. *Stocks of coke and coke-oven coke*
(coke taken at its coal value)

(1 000 tonnes)

	End of 1979 Actual	End of 1980 Provisional	End of 1981 Forecast	Difference	
				1980/79	1981/80
Belgium	290	372	515	+ 82	+ 143
Germany (¹)	21 102	21 380	23 661	+ 278	+ 2 281
France	4 531	6 444	7 192	+ 1 913	+ 747
Greece	—	—	..	..	..
Ireland	30	30	30	—	—
Italy	549	715	728	+ 166	+ 13
Netherlands	29	65	65	+ 36	—
United Kingdom	12 799	21 024	26 013	+ 8 225	+ 4 989
Community	39 330	50 030	58 203	+ 10 700	+ 8 173

(¹) Including Notgemeinschaft.
Coal: 7 259,
Coke: 2 977.

TABLE 29 A

Breakdown of coal stocks

(Total colliery stocks at the end of September 1980)

A. *By group and by area*

(1 000 tonnes)

	Groups I-II	Groups V-VI	Groups III-IV-VII	Total
Belgium				
Campine	—	184	—	184
Bassin Sud	16	—	—	16
Total	16	184	—	200
Germany				
Ruhr	354	4 135	102	4 591
Saar	—	170	906	1 076
Aachen	289	57	463	809
Niedersachsen	811	—	—	811
Total	1 454	4 362	1 471	7 287
+ Notgemeinschaft	—	—	—	7 260
Total	—	—	—	14 547
France				
Nord/Pas-de-Calais	1 111	870	11	1 992
Lorraine	—	2 885	—	2 885
Centre-Midi	347	372	693	1 412
Total	1 458	4 127	704	6 289
Ireland	—	—	30	30
United Kingdom				
Scotland	—	79	215	294
Northern	—	1 902	334	2 236
Yorkshire	—	664	921	1 585
North-Western	—	861	85	946
Midlands	—	112	2 154	2 266
South Wales	1 499	366	1 940	3 805
Opencast	1 030	909	1 560	3 499
Total	2 529	4 893	7 209	14 631
Community	5 457	13 566	9 414	28 437

TABLE 29 B

Breakdown of coal stocks

(Total colliery stocks at the end of September 1980)

B. *By group and by preparation*

(1 000 tonnes)

	Large and grabed	Smalls washed	Untreated smalls and fines	Part-treated smalls	Run of mine	Slurry	Total
Belgium							
I + II	—	3	—	9	—	4	16
V + VI	52	108	3	21	—	—	184
Others	—	—	—	—	—	—	—
Total	52	111	3	30	—	4	200
Germany							
I + II	111	384	249	698	—	12	1 454
V + VI	151	1 434	4	2 568	—	205	4 362
Others	171	303	113	276	—	608	1 471
Total	433	2 121	366	3 542	—	825	7 287
+ Notgemeinschaft							7 260
Total							14 547
France							
I + II	92	462	99	593	3	209	1 458
V + VI	560	1 079	379	986	21	1 102	4 127
Others	31	56	329	165	—	123	704
Total	683	1 597	807	1 744	24	1 434	6 289
Ireland III – IV – VII	—	—	—	—	30	—	30
United Kingdom							
I + II	12	898	702	7	910	—	2 529
V + VI	284	2 400	1 272	613	324	—	4 893
Others	740	1 806	2 373	1 084	1 206	—	7 209
Total	1 036	5 104	4 347	1 704	2 440	—	14 631
Community							
I + II	215	1 747	1 050	1 307	913	225	5 457
V + VI	1 047	5 021	1 658	4 188	345	1 307	13 566
Others	942	2 165	2 815	1 525	1 236	731	9 414
Total	2 204	8 933	5 523	7 020	2 494	2 263	28 437

TABLE 30

Stocks of coal at power stations

(End of September 1980)

	30 September 1979 1 000 tonnes	30 September 1980		Difference 1980/79 1 000 tonnes
		1 000 tonnes	Days	
Belgium	752	764	50	+ 12
Denmark	3 027	4 071	165	+ 1 044
Germany	7 379 (1)	11 247 (1)	95	+ 3 868
France	4 781	5 739	86	+ 958
Greece	—	—	—	—
Ireland	—	—	—	—
Italy	559	465	32	– 94
Luxembourg	—	—	—	—
Netherlands	418	172	30	+ 246
United Kingdom	15 726	18 817	76	+ 3 091
Community	32 642	41 275	85	+ 8 633

(1) Including Bergbauverbundkraftwerke.

Balance of supply and demand: hard coal — 1981

(1 000 tonnes)

	Belgium	Denmark	Germany	France	Greece	Ireland	Italy	Luxembourg	Netherlands	United Kingdom	Community
1. Production (t = t)	6 250	—	93 575	17 450	—	60	—	—	—	125 000	242 335
(national series)	—	—	(86 000)	—	—	—	—	—	—	—	
2. Recoveries	1 500	—	600	1 700	—	—	—	—	—	1 250	5 050
3. Receipts from other ECSC countries	2 780	1 000	2 000	5 425	50	220	2 270	180	1 370	100	(15 395)
4. Imports from third countries	8 090	10 100	9 500	22 310	335	1 060	13 630	170	5 330	6 500	77 025
5. Total availabilities	18 620	11 100	105 675	46 885	385	1 340	15 900	350	6 700	132 850	324 410
6. Inland demand											
(a) power stations at mines	365	—	3 000	7 500	—	—	—	—	—	200	11 065
(b) public power stations	6 600	10 300	42 600 (¹)	17 100	—	60	5 600	—	3 200	87 700	173 160
(c) coking plants	7 620	—	36 750	13 470	260	—	9 900	—	2 550	14 300	84 850
(d) iron and steel ind.	85	—	1 200	1 275	100	—	20	345	—	200	3 225
(of which power stations)	(—)	(—)	(1 100)	(100)	(—)	(—)	(—)	(—)	(—)	(100)	(1 300)
(e) other industries	1 850	690	7 000	2 800	5	35	200	—	225	8 000	20 805
(of which power stations)	(—)	(—)	(4 300)	(—)	(—)	(—)	(—)	(—)	(—)	(2 400)	(6 700)
(f) domestic heating	1 500	20	1 100	2 100	5	1 200	150	5	200	9 700	15 980
(g) miscellaneous:											
1. issues to workers	13	—	230	110	—	—	—	—	—	1 900	2 253
2. patent fuel plants	65	—	1 500	1 750	—	—	10	—	—	1 100	4 425
3. own consumption at mines	5	—	320	350	—	—	—	—	—	500	1 175
4. gasworks	—	90	200	—	15	45	—	—	—	—	350
5. railways	2	—	75	10	—	—	20	—	—	50	157
6. others	—	—	900	—	—	—	—	—	—	1 800 (¹)	900
Total	18 105	11 100	94 875	46 465	385	1 340	15 900	350	6 175	123 650	318 345
7. Deliveries to other ECSC countries	455	—	10 340	410	—	—	—	—	425	3 765	(15 395)
8. Exports to third countries	60	—	460	10	—	—	—	—	100	400	1 030
9. Total requirements	18 620	11 100	105 675	46 885	385	1 340	15 900	350	6 700	127 815	319 375
10. Prod. stocks (begin.)	164	—	13 200	5 625	—	30	—	—	—	17 254	36 273
11. Additions/withdrawals from stocks	—	—	—	—	—	—	—	—	—	+ 5 035	+ 5 035
12. Production stocks (end)	164	—	13 200	5 625	—	30	—	—	—	22 289	41 308

(¹) Including Bergbauverbundkraftwerke.

Coal — Intra-Community exchanges 1981

(1 000 tonnes)

To / From	Belgium	Denmark	Germany	France	Greece	Ireland	Italy	Luxembourg	Netherlands	United Kingdom	Total receipts
Belgium	—	—	2 350	40	—	—	—	—	225	165	2 780
Denmark	—	—	—	—	—	—	—	—	—	1 000	1 000
Germany	375	—	—	300	—	—	—	—	200	1 125	2 000
France	75	—	4 335	—	—	—	—	—	—	1 015	5 425
Greece	—	—	30	20	—	—	—	—	—	—	50
Ireland	—	—	—	—	—	—	—	—	—	220	220
Italy	5	—	2 185	40	—	—	—	—	—	40	2 270
Luxembourg	—	—	120	10	—	—	—	—	—	50	180
Netherlands	—	—	1 220	—	—	—	—	—	—	150	1 370
United Kingdom	—	—	100	—	—	—	—	—	—	—	100
Total deliveries	455	—	10 340	410	—	—	—	—	425	3 765	15 395

Balance of supply and demand: coke 1981

(1 000 tonnes)

	Belgium	Denmark	Germany	France	Greece	Ireland	Italy	Luxembourg	Netherlands	United Kingdom	Community
1. Production — coke-oven coke	5 900	—	28 400	10 900	200	—	7 600	—	1 950	10 950	65 900
— gas coke		60	150	—	10	30	—	—	—	—	250
Total	5 900	60	28 550	10 900	210	30	7 600	—	1 950	10 950	66 150
2. Receipts from other ECSC countries	700	100	600	1 950	50	30	40	2 015	645	10	(6 140)
3. Imports from third countries	100	—	500	150	—	—	—	—	90	—	840
4. Total availabilities	6 700	160	29 650	13 000	260	60	7 640	2 015	2 685	10 960	66 990
5. Inland demand											
(a) iron and steel ind.	5 740	30	18 620	10 225	225	—	6 290	2 010	1 840	6 310	51 290
(b) other industries	215	55	1 500	1 050	25	20	400	3	200	900	4 368
(c) domestic users	20	20	1 000	120	10	—	135	2	5	2 400	3 712
(d) miscellaneous											
— issues to workers	10	—	600	120	—	—	10	—	—	— (1)	740
— own consumption	5	5	320	330	—	—	90	—	—	175	925
— other	—		230	5	—	—	—	—	—	—	235
Total	5 990	110	22 270	11 850	260	20	6 925	2 015	2 045	9 785	61 270
6. Deliveries to other ECSC countries	200		4 725	430	—	—	40	—	440	305	(6 140)
7. Exports to third countries	400	50	900	145	—	40	665	—	200	905	3 305
8. Total requirements	6 590	160	27 895	12 425	260	60	7 630	2 015	2 685	10 995	64 575
9. Producers' stocks (beginning)	160	—	6 292	630	..	—	550	—	50	2 900	10 582 (1)
10. Additions/withdrawals from stocks	+ 110	—	+ 1 755	+ 575	—	—	+ 10	—	—	− 35	+ 2 415
11. Producers' stocks (end)	270	—	8 047	1 205	..	—	560	—	50	2 865	12 997 (1)

(1) Not including Greece.

Coke-oven coke — Intra-Community exchange 1981

(1 000 tonnes)

From / To	Belgium	Denmark	Germany	France	Greece	Ireland	Italy	Luxembourg	Netherlands	United Kingdom	Total receipts
Belgium	—	—	500	40	—	—	—	—	100	60	700
Denmark	—	—	20	75	—	—	—	—	—	5	100
Germany	60	—	—	300	—	—	—	—	140	100	600
France	125	—	1 580	—	—	—	25	—	200	20	1 950
Greece	—	—	35	—	—	—	15	—	—	—	50
Ireland	—	—	—	—	—	—	—	—	—	30	30
Italy	—	—	40	—	—	—	—	—	—	—	40
Luxembourg	5	—	2 010	—	—	—	—	—	—	—	2 015
Netherlands	10	—	535	10	—	—	—	—	—	90	645
United Kingdom	—	—	5	5	—	—	—	—	—	—	10
Total deliveries	200	—	4 725	430	—	—	40	—	440	305	6 140

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**COMMISSION
OF THE
EUROPEAN COMMUNITIES**

DIRECTORATE-GENERAL FOR ENERGY

Coal Directorate

Brussels 29th July 1981

KR/LC/bh

EC COAL MISSION TO THE USA

29 June - 2 July 1981

Summary report

SUMMARY

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**COMMISSION
OF THE
EUROPEAN COMMUNITIES**

DIRECTORATE GENERAL FOR ENERGY

Coal directorate

EC Coal Mission to the USA
29 June - 2 July 1981
Summary Report (1)

1. The Background

Early this year, the Commission circulated to European coal operators a discussion paper describing "Problems in the maritime transport of coal" and dealing with possible short term solutions.

The paper mainly dealt with the incremental costs arising from the congestion at East Coast ports of the USA, where ships awaiting loading for 2 or 3 months had to remain physically present in the queue and therefore incurred demurrage charges which would amount to an estimated total of $ 250 to 500 million as far as the Community is concerned for 1981.

Apart from this direct burden, other serious consequences were envisaged, which have in fact materialized :

- such a situation affects the good management of floating stocks and stocks in importing countries, especially for the steel industry ;
- coal sellers in other exporting countries would try to increase their prices by the amount of demurrage costs ;
- the artificial immobilisation of a considerable shipping capacity results in a higher level of freight rates.

The discussion of these problems by interested groups within the Community led to the conclusion that priority should be given to the problems of the physical presence showing and registration of ships in US ports with a view to alleviating the demurrage charges. It was informally agreed that Community concerns should be best expressed by a small mission going to the USA in order to meet the interested counterparts.

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(1) This mission report reflects the impressions of the two persons undersigned and does not represent an official opinion of the Commission of the European Communities.

2. Participants and programme of the EC Coal Mission

The members of the mission were three representatives from big European buyers/consumers representing the steel industry, the electricity generating industry and the import trade who were accompanied by two senior officials of the Directorate General of Energy and one from the Dutch Department of Economy as representative of the Council Presidency (see Annex I).

The limited number of participants made it possible for the U.S. State Department to arrange, just before the summer recess, an impressive programm of meetings and visits in cooperation with the Delegation of the EC Commission in Washington.

Meetings were held with representatives of :

- the Coal Exporters Association, the United Mine Workers ;
- the three main rail road companies serving the East Coast (with a visit to two dumping facilities at Hampton Roads) ;
- the Great Lakes Commission on behalf of the region served by the Great Lakes/ St Lawrence Seaway Transportation System ;
- Senator J. WARNER, and staff members of different Congress Committees ;
- Departments of State, Energy, Commerce, and other branches of the Administration ;
- different consultants (especially Ambasador H. OWEN). (see Annex II).

Due to the wide range of persons met, their different tasks and responsibilities, the primary scope of the mission (short term issues) was extended to mid- and long term problems concerning the development of U.S. coal exports to the EEC. (1)

This report does not reflect in each case the individual views heard about different subject-matters. Personal statements are quoted when it appears necessary for a clear understanding of the situation. When opinions appear to be generally agreed, due allowance is made for possible divergences.

3. The situation after the strike

It is estimated that the new contracts signed by the mine operators and the Union of Mine Workers will provide a good relationship for 40 months.

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(1) A background brief about coal in the EC, prepared by the Coal Directorate of the Commission, was circulated to all attendees of the different meetings.

At the time of the visit, production had reached about 70 % of the pre-strike level. Most mines will not take any vacation this year, which should allow compensation for some of the production losses incurred during the strike.

At Hampton Roads, a queue of vessels has again built up. During our visit (June 30th), we observed the loading of a ship which had been waiting since February. The rate of loading was 3 000 tons per hour, due to the shortage of cars after the strike, against 6 000 t/h under normal conditions. Another vessel, waiting since January, was due to load about mid-July ; demurrage costs should be in the order of 35 dollars per ton.

Annex III (a - b - c - d) gives a series of data on U.S. coal exports in 1980 and 1981.

4. Loading arrangements on the East Coast - Immediate and short term issues

The physical movements of the coal from mine to ship are primarily the responsibility of private industry.

Among the four routes used for the export of American coal - East Coast, Great Lakes, Gulf and West Coast - only the first one has been subject to strong criticism concerning the vessel despatching system applied at the different loading ports and piers (1).

These ports are operated by three railway companies, each of them serving a territory comprising some of the Eastern (Appalachian) Coal Districts which are of major interest to the E.C. coal supply. Each railway company holds a dominant position in its territory ; the coal mines consider themselves as "captives"of the railroads at least as far as exports are concerned.

At the unloading end of the system, the railroads used to apply for the ships the principle "first come, first served". They continued to do so in spite of the rocketing demand for coal (especially steam coal but also coking coal) for the European and Asian markets, which have concentrated on the USA for the last year and half.

It is now generally recognized that there has taken place a structural change of the market and that only new ideas can help overcome the congestion problems in the ports.

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(1) See Annex IV a : Direct railroad service from Appalachian Region.

In meetings held separately by the EC Mission in presence of the U.S. Coal Exporters with representatives of the three railway companies operating on the U.S. eastern seabord, each company showed a different approach.

Norfolk and Western Railway (N & W) is presently testing two types of loading contracts : one commitment is on a basis of at least two years covering a minimum of 800,000 tons per year (1) ; the other type is for a single vessel ; several conditions apply (minimum tonnage, limited number of origin mines and classifications, and so on). N & W would guarantee a berth on the scheduled arrival date or on the next calender day. For a failure to load or to provide a berth on time, penalties would apply on a same basis for either side. Such contracts can be entered by all transshippers (customer, broker or mine).

N & W hopes that these contracts would work out to a demurrage-free situation for about 60-70 % of their loading capacity and to a better turn-round time for non-contract vessels but without totally eliminating the problem.

Having said that, the N & W representative announced on June 29 that another vessel appointment system was being envisaged for introduction in the very short term, in the form of a pre-registration without any showing up ; the next ship due to arrive would be given a number allowing her to retain her position in the queue even if not physically present. Even if no precise loading date were to be guaranteed, this new formula would reduce the waiting time to 7 to 10 days and therefore eliminate up to 60-90 days demurrage. Large and small coal shippers alike can take advantage of this new contract (2).

The new contracts establish simplified procedures for loading and dumping coal that should help to improve coordination of the flow of coal from mine to port.

A test-time of 60 to 90 days is deemed necessary to gain experience and judge the results of the three formulas.

N & W also endeavours to ease the present congestion by other means, e.g. looking to the river route and to the rates structure with a view to improving the situation step by step (3).

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(1) Such contracts are filed under ICC (Interstate Commerce Commission). Some doubts have been expressed about these contracts ; they possibily infringe the common carrier obligation and could be subject to legal attacks.

(2) This new offer has now been published (see Coal News, July 20, 1981 page 5).

(3) See Annex IV b and c (N & W, Coal export operations).

The representative of Chessie System explained the registration rules put into effect April 15, 1981 under which a vessel having registrered for loading at Newport News, Virginia (or Curtis Bay, Maryland) may be withdrawn from Port and must return to Port and register again with the Railroad on or before a specified estimated date. The withdrawing must be confirmed in writing ; the vessel (or its substitute) which fails to return to Port would have to pay a penalty of $ 25.000 per day, which should have a deterrent character.

The system now in force could lessen the present wait in Baltimore from 45 days to 8 or 10 days.

The situation would remain very difficult until the loading capacity can meet the demand, which could take 2 to 3 years. In the meantime, through put would be increased by different measures ; for example the loading equipment would work 24 hours a day instead of presently 16 hours ; and chemical additives would be used against coaldust.

As to the physical presence of the vessel, the matter remains under review ; substitutes appear possible and new ideas would be discussed in the near future (1).

The Consolidated Rail Corporation (Conrail) representative explained that his company would substantially improve its loading facilities at Philadelphia, Baltimore and New-York.

A year from today (in June 1982), Conrail would have completed a $ 33 million investment which would result in a significant shortening of the waiting time.

Developping other private port facilities would require long term (10-15 years) commitments from the customers.

5. The Great Lakes (St Lawrence Seaway Transportation System)

The Great Lakes Commission - an interstate organization formed in 1955 by the eight States bordering the Great Lakes - kindly agreed to come to Washington and provide presentations to the EC Coal Mission by representatives of railroad and steamship companies.

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(1) See Annex IV d and e (Chessie, Coal Export operations) and f (dumping records at Hampton Roads).

As stated in the winter 1981 edition : of "Seaway Review" "1980 was the year that the media and the politicians rediscovered coal exports ; hopefully, 1981 will be the year in which they rediscover "North" America's Fourth Seacoast".

In 1980, the Great Lakes fleets carried over 40 million tons of coal approximately evenly divided between American and Canadian destinations.

The fundamental concept of the Great Lakes export coal alternative is to duplicate the approach presently being utilized to export 15 million tonnes of American and Canadian grain throughout the world. That is, coal would be carried by Great Lakes vessels to the St Lawrence for transfer into larger ocean-going vessels. Alternatively, European or Asian destined vessels with Canadian iron ore could be filled out with coal.

The St Lawrence ports and infrastructure have two major advantages over the East Coast and Gulf ports : proximity to Europe on a round trip basis and capability of servicing large ocean-going vessels. They are still underutilized.

The cost structure is less expensive than the Gulf route and very competitive with the East Coast route if the current congestion problem or the expected introduction of dredging fees is taken into account. A vessel having registered at Hampton Roads under the new procedure could easily undertake a triangle trip from the Great Lakes to Europe with a coal cargo.

The Great Lakes companies claim to be able to play an important supportive role in the immediate and long term transportation requirements for exporting coal to world markets. They would consider an advertising campaign in Europe.

Annex V outlines the principal characteristics of the coal loading ports in the Lakes and in the St Lawrence.

6. The port dredging issue

One of the barriers to accelerating and expanding the movement of export coal at U.S. ports is the limited depth of access. Not one port can adequately handle vessels of 100,000 DWT or greater.

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Therefore, improvements to existing capacities often pose the problem of dredging. This is a very complex issue, involving matters of jurisdiction financing and engineering.

Since 1824, responsibility has lain exclusively in the Federal Government's jurisdiction. The present authorization process has caused delays averaging 25 years (1).

There are currently a number of different bills (15 or more) before Congress, including a governmental proposal, which all aim at shortening the planning and approval process for port deepening and other improvements (2). The issues addressed in these bills are :

- a consolidated permit review system (including a consolidated hearings process) under which all required federal approvals can be obtained in a coordinated effort ;
- designation of a lead agency, preferably the U.S. Army Corps of Engineers, for prompt resolution of interagency disputes ;
- a firm timetable for preparation and completion of feasibility reports, environmental impact statements, etc ;
- a reasonable limitation on judicial review, one in which Congress affirms the adequacy of environmental impact statements, plans for deposition of dredged spoil, etc.

On June 18, 1981 Senator WARNER, Chairman of the Senate Sub-Committee on Energy and Mineral Resources, introduced a bill, S. 1389, entitled "The National Port and Navigation Act" of 1981. It incorporates all above criteria and sets forth a funding mechanism calling for a 60-40 Federal - State ratio for construction of projects.

This bill is generally considered as a good compromise. In common with the Administration proposal, it provides for fees assessed to raise the non-federal contribution. The dominant opinion is that such fees, spread on all users and all commerce, would only recapture a small share of the costs, while the economic rent resulting of lower freight rates for super-bulk vessels would accrue to the foreign shipper.

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(1) Statement by Mr. BALDRIDGE, Secretary of Commerce, 20 July 1981.
(2) Port dredging constitutes a major challenge to U.S. exports, non only of coal, but with coal being the major factor.

Other opinions are to the effect it is necessary to transfer jurisdiction from the Federal Government to that interested States ; this would facilitate the financing, especially for the relatively rich States (Louisiana, Texas), thus limiting the problem of sharing to the other States.

As to timing, most forecasts are rather optimistic. The legal framework would be ready next year and several big projects would be accomplished before or by 1990 on the Gulf and the East Coast.

7. Existing and potential U.S. Coal Export Port Capacity

A paper prepared by the Office of Export and Intermodal Development, Maritime Administration, U.S. Department of Commerce, dated June 1, 1981, notes that all existing coal loading ports have plans for expanding present capacity through improvements to existing facilities or the construction of new terminals.

If all of these facilities, both under construction and planned, were completed an additional 330 million tons of coal handling capacity would be developped, thus bringing total effective capacity to more than 500 million tons.

The development of new port capacity and associated coal loading equipment is not the responsibility of the Federal Government, but rather that of private industry, the States, and local Government.

Some corcern has been voiced about the construction of overcapacity at U.S. ports, and the waste of resources it would entail. It is expected, however, that individual construction plans will be adjusted with this prospect in mind. Also, new facilities are not constructed so that their full volume will be reached immediately, but rather so that they may handle larger volumes over time.

There is also some concern about any massive dredging programm "because it would not change the U.S. world market share significantly if the U.S. cannot control mining and transportation costs and eliminate demurrage". This critical attitude is, however, not shared by most of the insiders.

Annex VI (a,b,c,d,e) summarizes the existing and potential effective capacity for handling export coal at U.S. ports of the different coasts.

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8. The U.S./E.C. Coal Relationship

This issue has been dealt with in all the meetings arranged for the E.C. Coal Mission.

In the private sector, coal is looked at as a growth sector where the export trend initiated by the dramatic increase 1979-1980 could and should continue, but planning production and transport capacities requires more than assumptions on the coming business. Europe and other overseas customers (Japan, Near East, Far East) should help and define reliable long term expectations concerning their U.S. coal demand. Europe in general is viewed as the natural export market for the Eastern coal districts. The European Community in particular is urged to make a general public commitment to importing a given tonnage of U.S. coal on a long term basis.

This commitment should be based on currently existing and planned long term contracts between the various consumers and the coal producers, with a corresponding information being given to the rail roads.

Presently, certain railway companies base their mid-term planning on the result of informal enquiries made periodically among their customers about the tonnages they expect to charge in the next five years.

The U.S. Administration is very eager to demonstrate the U.S. capacity to meet the demand from Europe as a reliable, strong exporter of coal. The guarantee of political stability was outlined repeatedly as an element which should be weighed against less favourablefactors. After the release of the National Energy Plan (1) on July 15, a positive statement concerning coal exports is to be published as part of an articulated policy (see Annex VII). A number of elements would have to be worked out in detail later on. The legal framework will be stable and would not disrupt normal commercial practices.

Sales of coal have a high priority for the present Administration. In the near future, all coal export problems will be examined at high level by a Cabinet cluster under the chairmanship of the Secretary of Commerce. The Department of Commerce will also act as an coordinator among all other federal departments and agencies with regard to coal. One aim will be to remove all regulatory barriers which obstruct the export of coal.

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(1) Required by Congress every two years.

The two Congress committees on Energy will be very active in exploring the problem of coal exports. They have a concern in common with the coal producers and the Administration ; the U.S. should only take action - which involves enormous financial commitments - if the country is not to remain a swing (marginal) supplier of the export market but gets a real chance to cover the base load for coal imports, especially into Europe.

A market study - drawing from the Interim Report of the Interagency Coal Export Task Force of January 1981 - would start in September 1981 with hearings to be held in Washington with representatives of consumers, governments and competitors. The committees also hope to be able to visit Europe (E.C., I.E.A., ports, trade companies etc). Clear answers from the European side would be helpful, for instance as to the effect of non-deepening the U.S. ports (1).

Having noticed the strong development of coal terminals in Europe, some interlocutors wondered why European consumers could not transfer such internal commitments to external commitments.

In the different meetings, the big need of communication between both sides was strongly expressed by the American side. A common view was that it would equally be useful for Europe to have an European focus for coal imports ; some spoke of coordinated import programmes. The mission made it clear how difficult it would be to implement such ideas, but did not preclude improvements in practice.

9. Other items

- Investing in U.S. mines by European companies would be welcomed by the Administration.
- Deregulation of export rail rates : the proposal was withdrawn in June.
- The future of the small coal operators : some fear has been expressed by the European side that small mines could be at a risk of being shut out of the market through the new loading contracts etc. The larger coal mines, however, think that small mines will remain competitive, even if they have to sell indirectly a certain share of their production.
- Coking coal supply : in view of the changing export market pattern, with coking coal demand remaining stable and steam coal strongly increasing its share over the next years, some producers and consumers would like to consider some special arrangements for the steel industry. The American side

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(1) European consumers pointed to two recent contracts entered with Canadian coal producers on the basis of freight for super-bulk vessels.

assumes that this problem will be overtaken by events in a few months, if the new registration systems and immediate loading improvements produce the expected results.

- Coal Foundation will be established to promote the coal industry and the use of coal. Its board of directors will consist of representatives of the Coal Operators, the United Mine Workers, the Industrial coal users, the Harbour Association, and Government Congress.

Priority for coastwise coal transport

A reserve is made in the new loading contracts as to the application of the law. However, the effects seem to remain marginal so far.

A new bill extending the priority to American flag export vessels was practically ignored.

10. Conclusions

The purpose of the EC Coal Mission to Washington, D.C., was

- to get an overview of and the background to the new procedures for registration and loading of coal carriers in the US East coast ports,
- to make the US side aware of the European dimensions of the US coal export problems, including the impact of high demurrage charges,
- to be better informed about the inter-play of industry, railroads, ports, state and federal agencies etc.

All members of the group felt that these aims of the visit had been fully attained. The following points summarize the mission's impressions :

i) There was a great deal of interest from the US side in the mission and in the problems as explained by it. Assurance was repeatedly given, at the highest level, of a strong US commitment to secure supplies of US export coal under competitive conditions. A Presidential statement on this issue was announced (and released by the Commerce Department on 20 July 1981 - see Annex VII).

ii) Solutions of the short-term problem with a view to easing the problem of port congestion (long waiting times, high demurrage costs) depend largely on the railroad companies which have been rather cautious in reacting to developments in international coal markets.

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The immediate measures taken by the railroads (new types of contracts or berthing procedures and technical improvements step by step) may be considered as a light at the end of the tunnel. Such contracts may, in some cases, be subject to regulatory dispute. The EC Commission services will closely follow developments and will collect opinions on the practical results.

In the medium term a great number of projects to expand the effective coal loading capacity of existing or potential ports have been made public to such an extent that some interested parties are afraid that an overcapacity might built up. However the majority considers this as a matter for free enterprise.

iii) The US coal exporters consider Europe as their natural market, which is explained by the fact that the sailing time for coal carriers to Europe is approx. 9 days from the USA, 25 from South Africa, 45 days from Australia and 49 days from Western Canada. Nevertheless, US coal must try hard to remain competitive with other world market suppliers. To get things going the US side presses strongly that European buyers make (private and official) long-term commitments. "Long-term" is understood to be 10 years and more.

iv) Port dredging (allowing the use of ships of up to 150,000 dwt) and the modes of financing turned out to be a question much more in the foreground of the mission's discussions than previously expected. The situation is still unclear as to when and which new system will be adopted by Congress. Under the new Administration there will certainly be an important shift away from federal funding towards private financing and, consequently, to fees to be paid by channel users (all in and outgoing traffic). To dredge deeper channels in the major US harbours clearly will take at least up to ten years.

v) On the side of the US Administration the lead in coal export policies will be taken by the Department of Commerce. The issue of the nomination of a special Coal Advisor to the President is under discussion.

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Most participants of the meetings held with the EC Coal Mission demonstrated their concern to create and develop better means of communication between both sides of the Atlantic on all matters of common interest in the sector of coal trade.

The authors of this report would like to record their appreciation of the help given to the EC Coal Mission by a great many people in the U.S. and notably by the US State Department, the National Coal Association and the EC Delegation in Washington.

K. REICHERT L. CALIBRE

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ANNEX I

E.C. COAL MISSION TO THE U.S.A.

List of participants

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ANNEX II

E.C. COAL MISSION TO THE U.S.A.

List of meetings and persons met in Washington

1) Representatives of the coal mining industry

June 29, 1981

Ms. C. HOLMES	(Vice President, National Coal Association, Executive Secretary, Coal Exporters Association)
Mr. W.W. MASON	(President, Island Creek Coal Sales Co. and Chairman, Coal Exporters Association)
Mr. M.R. JOSEPH	(President, Anker Trading S.A. Inc. and Vice Chairman, Coal Exporters Association)
Mr. J.H. CURTIN	(Vice President, Massey Coal Export Corp.)
Mr. A.W. NEMENZ	(Vice President, Jno. McCall Coal Co., Inc.)
Mr. D. LARSON	(Vice President, Consolidation Coal Co.)
Mr. D. CHAPPELL	(Pittston Coal Export Corporation)

July 2, 1981

Mr. C. BAGGE	(President, National Coal Association)
Ms. C. HOLMES	(National Coal Association)
Mr. S. CHURCH	(President, Union of Mine Workers of America)

2) Representatives of rail roads and shipping companies

June 29, 1981

Mr. A. CHILDRESS	(Norfolk and Western)
Mr. M. GIBSON	(Chessie System)
Mr. C. KIMMERLE	(Conrail)

June 30, 1981 (at Norfolk, Va.)

Mr. Th. F. RAPPOLD	(N. & W., International Traffic)
Mr. Stanley CHAPPELL Jr	(Chessie, Tidewater Coal Traffic)
Mr. Captain PARODI	(Agent for Italian Customers)

July 2, 1981 (Great Lakes/St. Lawrence Seaway participants)

Mr. John A. McWILLIAM	(President, Toledo-Lucas County Port Authority)
Mr. Thomas SIEGEL	(Vice President, Marketing, Bessemer & Lake Erie Railroad)
Mr. David W. OBERLIN	(Administrator, St. Lawrence Seaway Development Corp.)
Mr. Jacques LES STRANG	(Publisher and Senior Editor, Seaway Review)
Mr. James FISH	(Executive Director, Great Lakes Commission)*
Mr. D. Ward FULLER	(Executive Vice President, American Steamship Company)
Mr. Fred PITRE	(Vice President, Marketing, Canada Steamship Lines)
Mr. Hugh M. McFARLANE	(President, Cast Ship Services Canada Ltd.)
Mr. William BUHRMANN	(President, USS Great Lakes Fleet, Inc.)

* responsible for general information.

3) Representatives of Administration and Congress

July 1st, 1981

Ms. C. LE BOW	(Chief Counsel, Democratic Policy, Senate)
Mr. J. HALL	(Office of Sen J. HEINZ, Chairman of the Senate Coal Caucus)
Mr. J. WARNER	(Senator, (R. Va.), Chairman, Senate subcommittee on Energy and Mineral Resources)
Mr. R. SINDELAR	(Counsel of the Subcommittee)
Mr. A. WAHLQUIST	(Office of Senator WARNER)
Mr. Ambassador H. OWEN	(Consultants International Group, Inc.)
Mr. F. POTTER	(Staff Director, House Committee on Energy and Commerce)
Mr. J. JIMISON	(Counsel, Fossil and Synthetic Fuels Subcommittee, House)
Mr. F. KHEDOURI	(Office of Management and Budget)

July 2, 1981

Mr. D. BOGGS	(Senior Policy Advisor, Office of Policy Development, White House Office)

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July 2, 1981 (Meeting with Executive Branch Agencies)

State Department

Mr. Robert D. HORMATS, Chairman
Mr. Edward L. MORSE
Mr. John P. FERRITER
Mr. William WITTING
Mr. David LOWENFELD
Mr. Gordon STREEB
Mr. Tim BROWN

Department of Energy

Mr. Alan HEGBURG
Mr. Donald ALBERT
Mr. Mario CARDULLO
Mr. Michael GAFFEN

Department of Commerce

Mr. Richard GARNITZ
Mr. Libby WALKER
Mr. Jay BRANDES

Maritime Administration

Mr. John NEIDLINGER

Corps of Engineers

Mr. William COUNCE

U.S. Trade Representative

Mr. Len LEVINE

(Debriefing for energy counselors for EC Member States)

Mr. B. HAMPTON, Chairman (British Embassy)

Annex III a)

U.S. COAL EXPORTS 1980

(millions of short tons)

	World		Europe		CCE (9)		Japan		Canada		Others	
	1	2	1	2	1	2	1	2	1	2	1	2
East Coast												
Hampton Roads	51.8		30.2		24.3		14.7		-		6.9	
Lambert												
Newport												
Baltimore	12.1		7.0		5.9		4.1		-		1.0	
Philadelphia	1.5		1.0		0.5		0.1		-		0.4	
Gulf												
Mobile	2.5		1.1		0.8		1.0		-		0.4	
New-Orleans	3.8		1.1		0.8		2.2		-		0.5	
Great Lakes St. Lawrence												
Western Coast												
Others	18.2		-		-		0.9		17.0		0.3	
Total	89.9	63.1	40.4	26.8	32.3	20.5	23.0	22.0	17.0	6.3	9.5	8.0

1) Bituminous coal

of which

2) Metallurgical coal

Source : International coal review

Annex III b)

U.S. COAL EXPORTS (1st QUARTER 1980)

(millions of short tons)

	World		Europe		EUR-9		Japan		Canada		Others	
	1	2	1	2	1	2	1	2	1	2	1	2
East Coast												
Hampton Roads	10.9		6.6		5.3		2.6		0.01		1.7	
Lambert												
Newport												
Baltimore	1.6		0.9		0.8		0.5		-		0.2	
Philadelphia	0.01		0.01		0.01		-		-		-	
Gulf												
Mobile	0.4		0.1		0.04		0.2		-		0.01	
New-Orleans	0.5		0.01		0.01		0.5		-		0.01	
Great Lakes St.Lawrence												
Western Coast												
Long Beach												
Others	0.4		0.01		0.01		-		0.4		0.01	
Total	13.9	11.9	7.7	6.0	6.2	4.8	3.8	3.7	0.4		1.9	1.9

1)Bituminous coal

of which

2) Metallurgical coal

Source : International Coal Review

U.S. COAL EXPORTS (1st QUARTER 1981)

Annex III c)

(millions of short tons)

	World		Europe		EUR-10		Japan		Canada		Others	
	1	2	1	2	1	2	1	2	1	2	1	2
East Coast												
Hampton Roads	13.7	11.4	9.1	6.8	7.5	5.4	2.9	2.9	-	-	1.7	1.7
Lambert												
Newport												
Baltimore	2.5	1.1	1.8	0.5	1.5	0.3	0.5	0.5	-	-	0.1	0.1
Philadelphia	0.6	0.1	0.5	0.01	0.5	-	0.01	0.01	-	-	0.1	0.1
Gulf												
Mobile	1.0	0.6	0.5	0.2	0.4	0.2	0.3	0.3	-	-	0.1	0.1
New-Orleans	2.8	0.6	2.1	0.2	1.3	0.01	0.4	0.4	-	-	0.3	-
Great Lakes												
St. Lawrence												
Western Coast												
Long Beach	1.0	0.3	-	-	-	-	0.8	0.1	-		0.3	0.1
Others	0.5	0.3	0.01	0.01	0.01	0.01	-	-	0.6	0.2	0.1	0.01
Total	22.1	14.4	14.1	7.9	11.2	6.1	5.0	4.3	0.6	0.2	2.7	2.1

1) Bituminous coal

of which

2) Metallurgical coal

Source : Internationa Coal Review

ANNEX III d)

U.S. BITUMINOUS COAL EXPORTS

January-May (5 Months Cumulative)
(000 Short Tons)

	Steam Coal			Metallurgical Coal		
	1980		1981	1980		1981
Japan	219	584.9 %	1,500	7,398	(11.7) %	6,532
EEC	2,859	188.5	8,248	8,768	(8.9)	7,990
Other Europe	521	314.8	2,161	2,201	10.9	2,441
South America	115	(13.0)	100	1,561	(22.9)	1,204
Canada	2,443	(4.2)	2,341	2,106	(38.9)	1,287
All Other	15	N.A.	670	1,504	7.6	1,619
Total	6,172	143.4 %	15,020	23,538	(10.5) %	21,073

United States coal exports in May were down 30 % from 1980 levels, but still better than expected : the exportation of 5.9 million tons of coal during the United Mine Workers (UMW) strike was an extraordinary performance. Exports from Hampton Roads (including Baltimore, Maryland) totaled only 1.7 million tons, indicating that shipments from Gulf Coast, Great Lakes, and West Coast ports were strong.

In contrast to the May 1981 export surge of steam coal, 61 % over May 1980 levels exports of metallurgical coal were down 61 % from May 1980 levels, the result of the greater unionization of metallurgical coal mines than steam coal mines.

Source : Monthly Coal News, No 81, Dean Witter Reynolds Inc.

ANNEX IV a)

DIRECT RAILROAD SERVICE FROM APPALACHIAN REGION

Railroad	East Coast Port	Great Lakes Port
Chessie	Curtis Bay, Baltimore, MD Newport News, VA	Toledo, OH
Conrail	Philadelphia, PA	Toledo, OH Ashtabula, OH
Norfolk & Western	Lamberts Point, Norfolk, VA	Sandusky, OH
Bessemer & Lake Erie	None	Conneaut, OH

ANNEX IV b)

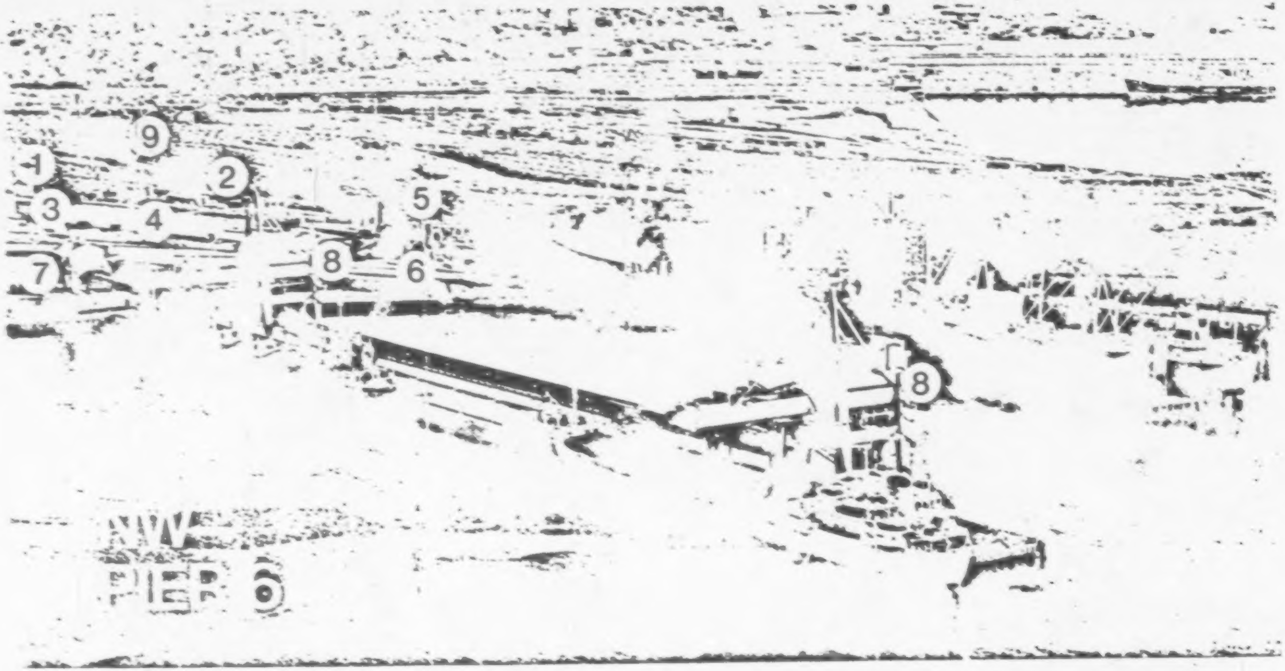
Technical Data relating to N. & W. coal export operations

- Number of coal cars :	- Total for the company	48,000
	- Serving Norfolk (transporting coal from 130 mines) distant of 400 - to - 450 miles	13,000
	- on the barney yard on June 30 (normal number 7,000)	6,000
	- for a train (average car load : 87 sh. t. range : 70 - to - 100 t.)	220
- Persons employed at Lambert points (including maintenance, for 3 shifts)		1,400
- Loading capacity		25,000 t per hour
- N.W. Pier 6 : see annex IV c)		

X

X X

N.B. : N. & W. repairs and makes coal cars in its own workshop. Besides the replacement of scrapped cars it is now possible to add to the inventory some new cars per day.



1. **Barney Yard.** This switching yard is where loaded coal cars are assembled before dumping. NW sorts cars containing various classes of coal as the first step in blending exactly the right coal mixture for each customer. The "Barney Yard" can hold 1,200 cars on its 17.47 miles of track.

2. **Scale Retarders.** These retarders slow each car rolling toward the weighing station so it will pass over the scales at not more than 5 mph. Car speed is determined by radar, which relays data to the retarder which then slows the car to the proper speed.

3. **Scale Office.** Two Fairbanks-Morse mechanical scales, each with a capacity of 400 tons, weighs each car and records its weight automatically. The scales are accurate within 0.2 per cent, or within 400 pounds, on a 100-ton coal load.

4. **Thawing Shed.** The car leaves the weighing station and rolls down to the thawing sheds. In the winter, frozen coal is thawed here so it can be dumped easily.

Electrically-powered infra-red heating elements, operating at 1550° F, are grouped on each side and beneath the cars. Cars pass through the sheds in six to nine minutes.

5. **Tandem Rotary Dumpers.** Together these high-speed dumpers can empty 252 cars per hour. The dumper mechanism pushes each car into position with an automatic chain drive, locks it in position, rotates it 165°, then turns it upright and releases it. The dumped coal falls into blending bins.

6. **Custom Blending Station.** This is where coal from various mines is precisely blended electronically to customer specifications.

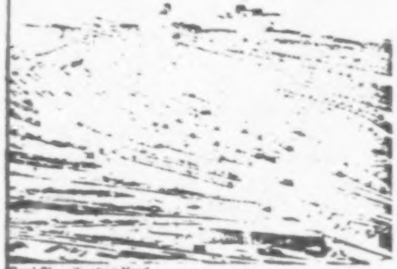
Blending ratios of up to 7-to-1 can be preset at each of three blending points. Coal falls from two bins at rates that are automatically varied. The coal falls onto the moving shuttle conveyors. A third control further varies blend proportions by presetting the relative speed at which the two shuttle conveyors deposit coal onto the main transfer conveyor belt.

7. **Transfer House.** Here coal is transferred to the pier conveyor belts. As the coal falls onto the pier conveyor belts it is mixed, increasing the homogeneity of the blend. More mixing is also accomplished at three other transfer points.

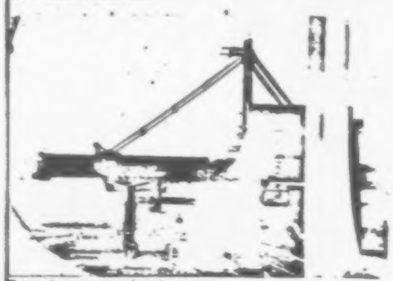
8. **Loading Towers.** Each of these massive towers weighs 2,800 tons and stands 192 feet above the water. They travel the length of the pier on 9 wheels. The towers can load two ships at once or both can concentrate on a single ship. Retractable booms reach down 120 feet and telescopic chutes with mechanical trimmers distribute the coal rapidly and evenly into the ship's hold.

9. **Empty Yard.** Empty cars leaving the dumpers move to the kickback, reverse direction and continue to the empty yard. From the retarder tower, cars are classified for return to the railroad that owns them. Cars needing repairs are switched to the modern repair shop.

The empty yard has 38 tracks with a total capacity of 2,330 cars.

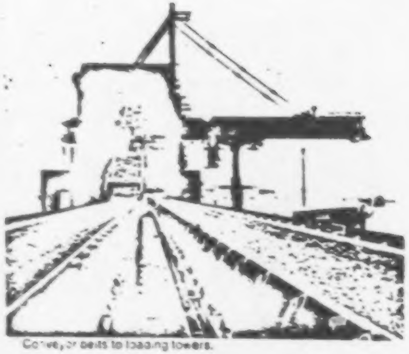


Coal Classification Yard.



Boom dumping mixed coal into hold.

Rotary dumpers in action.



Conveyor belts to loading towers.

This advanced $25 million Norfolk and Western facility is the world's fastest, most modern and most efficient coal loading operation. Located at Lamberts Point in Norfolk, Virginia, U.S.A., NW's Pier 6 has a loading speed of 16,000 tons per hour and can load at a rate of 20,000 tons per hour for 30-minute periods. No loaders elsewhere can operate at this capacity. The entire system, including support yards with storage space for 11,520 coal cars, offers shippers valuable savings in time and money through fast turnaround of colliers. A supplemental yard, at Portlock, gives the NW's Norfolk coal port the potential of marshalling 15,620 cars, full and empty, on 180 miles of track.

In today's world of increasing energy demand, it's good to know that NW serves more than 200 mines in the richest coal fields in the United States. Coal mined in the Pocahontas and other equally famous regions in NW territory are recognized as the finest in the world for metallurgical, steam and industrial use. They are noted for high BTU content, wide range of ash fushion temperatures, high grindability factor, and a relatively low sulphur content. At Pier 6 these coals can be custom-blended with more precision than anywhere else. Despite the U.S.'s increased reliance upon coal, reserves are so large that export demand can still be easily met.

Vast reserves of top-quality coal, excellent transportation facilities, and ultra-modern pier facilities . . . these are good reasons why such a high percentage of all U.S. coal shipped overseas is being loaded over NW piers at Norfolk. With increased industrialization throughout the world, the need for high-energy fuels and superior coking coals for steel manufacture are expected to create a rising demand for U. S. bituminous coal. The ability of 1600-foot-long Pier 6 to berth the largest colliers will make Norfolk a preferred port for shippers and purchasers of U. S. coals.

NW welcomes an opportunity to work with coal buyers and coal shippers in meeting overseas demands.

ANNEX IV d)

Technical Data relating to Chessie's coal export operations

- Number of coal cars storage yard capacity 7,000

- Territory served by Chesapeake and Ohio (C. & O.)

Coal Districts	Coal Fields
New River	Greenbrier New River Winding Gulf
Kanawha	Kanawha Coal River Logan
Kentucky	Big Sandy-Elkhorn

- Coal Dumpings - C & O Coal Piers, Newport News, Virginia

(millions of short tons)

	Export	Coastwise	Total
1957	23.2	3.7	26.9
1967	8.7	2.9	11.6
1974	10.3	2.1	13.4
1977	5.3	1.6	6.9
1978	5.0	0.8	5.8
1979	8.9	1.1	10.0
1980	18.0	0.8	18.8

ANNEX IV e)

NEWPORT NEWS, VIRGINIA - C&O COAL PIER NO. 14

Pier 14 is one of the most modern coal handling facilities on the Atlantic Seaboard and is engineered for quick loading and dispatch of the largest coal hauling vessels. Fast loading and provisioning permits substantial reduction in the vessels' in-port time. The pier is a low level, concrete structure 1078 feet long over timber fenders.

Two ships may be loaded simultaneously, one on each side of the pier or two on either side. Each side of the pier is served by four complete units consisting of car thawing plant, dumper, and a conveyor belt to convey the coal from the dumpers to two movable loading towers on the pier that may be spotted opposite the holds to be loaded.

Loaded cars of specified coals are released in prescribed order, furnished by the exporting company, and move by gravity from a yard back of the pier, and pass through a thawing plant to the foot of the incline. There are two five-car thawing sheds equipped with the very latest model low pressure air-oil atomizing car thawing side and undercar burners which permit a fast car-thawing capability. Also available are four multifingered car probes designed to greatly reduce delays due to coal being solidly frozen in cars. Dumpers are equipped with vibrators and hammermill coal crushers.

A barney pushes the cars up the incline and on the dumpers where the coal is dumped into 132-ton capacity hoppers located directly under the dumpers. The tandem dumpers are of the rotary type and located on the ground about 350 feet back of the bulkhead. They are arranged so that two cars, coupled together, may be dumped simultaneously into separate hoppers. At the Control Station the speed of flow is precisely regulated as dictated by the loading orders. Three variable speed belt feeders in each hopper place classified coals on the conveyor belts in proper ratio, which convey it along the pier and up an incline to a movable loading tower.

After reaching the loading tower, the coals are blended together in a precise mix, and moved on a belt in the tower, placed 90 degrees to the axis of the pier, which carries the coal to a telescopic chute through which it is loaded into the holds of ships. If but one ship is to be loaded on a side, all facilities of pier - dumpers, belts and towers - can be concentrated on that vessel at the 9,000-ton per hour rate.

Each of the towers has a capacity of 4,500 tons per hour on either side of the pier. The telescopic chutes are equipped with variable speed mechanical belt trimmers designed to shorten loading time while protecting, as may be necessary, the size of the coal. Each telescopic chute with its trimmer, is capable of being swung in all directions so that all parts of the hold may be properly loaded.

Each of the main conveyor systems is equipped with facilities for sprinkling the coal when so desired by the purchaser, weather conditions permitting.

Pier 14 is capable of servicing all ships that come to Newport News. It is provided with telephone service, fresh water, and ample lighting.

These facilities are also equally adapted to the economical handling of bulk coke.

NEWPORT NEWS, VIRGINIA - C&O COAL PIER NO. 15

The substructure of this modern pier is of concrete 1000 feet long and 89 feet wide. There is a stationary steel loading tower located 550 feet from the bulkhead. Winches at either end of the pier move the ship lengthwise along the pier, as necessary to load the various holds. This pier, with its companion Pier 14, has superior facilities particularly designed for dumping prepared coal, which is accomplished with a minimum of degradation. Pier 15 is also equipped with facilities for sprinkling the coal on request, weather conditions permitting, as well as fresh water, telephone service, and ample lighting. It is equally adapted to handling of bulk coke.

Line-haul cars move by gravity from ample storage yards and are pushed up an incline to a dumper.

On the one side of the pier, the cars are elevated and dumped directly into a large pan, from which the coal flows, with retarded gravity, through a telescopic chute, to the trimming machine.

An addition, the northside of Pier 15 was placed in operation during January 1957. It is designed primarily for handling prepared coal with minimum breakage. Loaded cars are dumped into hoppers by a rotary car dumper. From these hoppers, two 72" wide belt feeders traveling at a very slow rate transfer the coal onto the main 60" dock conveyor belt which, without transfer, conveys the coal to a 150-ton storage hopper on the loading tower. Here a specially designed lowering device lowers it into the hopper. Opening a gate at the bottom of the storage hopper permits the coal to flow through a pan into the telescopic chute and the cowl of the trimming machine. A gate on the cowl retains the coal and assures that the pan and chute are kept filled with coal while in operation. A device on the storage hopper senses the height of coal in the hopper, and if it falls below a predetermined level, the gate on the cowl of the trimming machine closes and remains closed until the supply of coal in the storage hopper is replenished. Thus, the system can be kept filled with coal and excessive drops avoided. The entire system is adjustable speed with the main conveyor speed ranging from 200 to 600 feet per minute. It is, therefore, possible to select a speed to best handle the various grades of coal with minimum loss of form.

ANNEX IV f)

DUMPING RECORDS AT HAMPTON ROADS

		Chessie System	
	N&W	C&O	B&O
Best 8 hour shift	7:00 am to 3:00 pm February 3, 1973 67,496 net tons	12:01 am to 8:00 am November 12, 1963 48,062 net tons	7:00 am to 3:00 pm March 21, 1976 30,600 net tons
Best day	March 6, 1970 153,383 net tons	March 31, 1964 114,359 net tons	May 5, 1969 70,446 net tons
Best 7 day period	March 9-15, 1970 798,783 net tons	May 29 - June 4, 1957 691,780 net tons	Not available
Best month	March 1970 3,317,541 net tons	March 1957 2,537,374 net tons	October 1980 1,456,539 net tons
Best year	1970 34,467,808 net tons	1957 26,982,532 net tons	1980 13,898,985 net tons
Most tonnage for a single vessel:			
Name	Kildare	Lake Tahoe	Loussios
Date	6/18 - 6/20/78	5/2/78	11/21 - 11/23/79
Destination	Japan	Japan	Belgium
Net tons	124,881	123,211	84,614
Total loading time	55 hours 35 minutes	Not available	61 hours 30 minutes
Length of vessel	958 feet	954 feet 9 inches	864 feet
Width of vessel	148 feet	147 feet 8 inches	133 feet
Draft	47 feet 1 inch	45 feet 5 inches	39 feet 3 1/2 inches

The M/V Rhetoric, 995 feet 9 inches long and 151 feet 1 inch wide, loaded August 1975, taking part cargo at C&O and N&W Coal Piers. Total tons loaded into vessel 84,049 net tons to Japan.

The M/V Laura, 980 feet long and 154 feet wide, loaded part cargo at C&O on August 24, 1978.

Annex V

Principal characteristics of the coal loading ports

In the Lakes

Port	Location	Ground storage availability	Designed annual throughput	Actual annual throughput
		(thousand tons)	(thousand tons)	(thousand tons)
1. Ashtabula	Lake Erie	1 500	12 000	6 000
2. Conneaut	Lake Erie	6 000	13 000	10 000
3. Erie	Lake Erie	20	1 000	500
4. Sandusky	Lake Erie	850	7 500	6 000
5. Toledo	Lake Erie	-	24 000	14 000
6. South Chicago	Lake Michigan	-	8 000	2 000
7. Superior	Lake Superior	12 000	12 000	3 000
8. Thunder Bay	Lake Superior	1 250	6 000	3 000
			83 500	44 500
In the St Lawrence				
1. Montreal	West St Lawrence	100	500	-
2. Contreceour	East St Lawrence	unlimited	5 000	3 000
3. Quebec	Central St Lawrence	500	3 000	1 500
			8 500	4 500

Annex VI a)

EXISTING AND POTENTIAL EFFECTIVE CAPACITY FOR HANDLING EXPORT COAL AT U.S. PORTS

(millions of short tons)

Port/Terminal	Vessel Size (DWT)		Existing Capacity** (10⁶ tons)		Effective Capacity Expansion (10⁶ tons)		Total Mid to Long-Term* Effective Capacity, 1985 (10⁶ tons)
	Existing	Proposed	Designed	Effective	Planned	Underway	
East Coast							
Narragansett, R.I. (P)		120,000					
Albany, NY (P)	30,000				2.0	2.0	4.0
New York, NY							
. South Amboy, NJ (E)				1.0			1.0
. Stapleton/Bayonne (P)	80,000	150,000			10.0		10.0
Philadelphia-Pier 124 (E)	60,000	80,000	5.0	2.5		6.5	9.0
Camden, NJ (P)	35,000	60,000			2.0		2.0
Wilmington, DEL (P)	30,000	60,000			7.5		7.5
Lower Delaware Bay (P)	100,000+				10.0		10.0
Baltimore, MD							
. Curtis Bay (E)	80,000	100,000+	27.2	16.6			16.6
. Curtis Bay (P)						12.0	12.0
. Canton Marine Term (P)						10.0	10.0
. Marleys Neck* (P)					5.0		5.0
Norfolk-Pier-6-North (E)	80,000	100,000+	58.0	29.0	7.3		36.3
Pier-5-South (E)	30,000		8.0	4.0	1.0		5.0
Newport News-Pier 14 (E)	80,000	100,000+	33.0	16.5			16.5
Pier 15 (E)	40,000		14.6	5.3		5.0	10.3
Pier 9 (P)					10.0		10.0
Portsmouth (P)	50,000	100,000+			10.0		10.0
Morehead City, N.C.							
. Bulk Terminal (E)	50,000	100,000+		3.0			Interim***
. Radio Island-1 (P)	50,000	100,000+			10.0		10.0
. Radio Island-2 (P)	50,000	100,000+			15.0		15.0
Wilmington, NC (P)	50,000				5.0		5.0
Charleston (P)	40,000	50,000			1.5	2.5	4.0
Savannah, GA							
. Savannah Coal Term (P)	50,000	70,000			12.0		12.0
. Hutchinson Island Co. (P)	50,000	70,000			12.0		12.0
Brunswick, GA (P)	30,000	43,000			2.5		2.5
TOTAL EAST COAST			145.0	77.9	122.0	38.0	235.7
Baltimore (Bethleem Steel)					10.0		+ 10.0

Annex VI b)

EXISTING AND POTENTIAL EFFECTIVE CAPACITY FOR HANDLING EXPORT COAL AT U.S. PORTS

(millions of short tons)

Port/Terminal	Vessel Size (DWT)		Existing Capacity** (10^6 tons)		Effective Capacity Expansion (10^6 tons)		Total Mid to Long-Term* Effective Capacity, 1985 (10^6 tons)
	Existing	Proposed	Designed	Effective	Planned	Underway	
Gulf Coast							
Mobile (E)	40,000	100,000+	11.0	5.5		5.0	18.5
New Orleans, LA							
. New Orleans-Davant (E)	60,000	100,000+	14.0	7.0	5.0		12.0
. Myrtle Grove (E)	60,000	100,000+	6.0	3.0	9.0		12.0
. New Orleans-Gulf Outlet (E)	30,000			4.0			4.0
. Port Sulphur 39.2 (P)	60,000	100,000+			8.0		8.0
. Magnolia-1 46.6 (P)	60,000	100,000+			12.0		12.0
. -2 47.0 (P)	60,000	100,000+			2.0		2.0
. St. Elmo 174.0 (P)	60,000	100,000+			10.0		10.0
. Sunshine 203.0 (P)	60,000	100,000+			8.0		8.0
. Manchac 213.0 (P)	60,000	100,000+			11.0		11.0
Baton Rouge (Burnside) (E)	60,000	100,000+	5.0	2.0	4.0		6.0
Midstream Operations (E)L.Miss. R.	60,000	100,000+		9.6	14.4		24.0
Port Arthur (P)	60,000	100,000+			2.0		2.0
Galveston (P)	55,000	100,000+			10.0		10.0
Corpus Christi (P)	75,000	100,000+			0.5		0.5
TOTAL GULF COAST			36.0	31.1	95.9	5.0	132.0

EXISTING AND POTENTIAL EFFECTIVE CAPACITY FOR HANDLING EXPORT COAL AT U.S. PORTS

(millions of short tons)

Port/Terminal	Vessel Size (DWT)		Existing Capacity** (10⁶ tons)		Effective Capacity Expansion (10⁶ tons)		Total Mid to Long-Term* Effective Capacity, 1985 (10⁶ tons)
	Existing	Proposed	Designed	Effective	Planned	Underway	
West Coast							
Los Angeles, CA							
. Berth 49-50 (E)	100,000+		4.0	1.5			1.5
. Terminal Island (P)		250,000			20.0		20.0
Long Beach, CA							
. Pier G(212-215 (E)	100,000+		4.0	1.5	3.5		5.0
. Cerritos Channel (P)	100,000+				10.0		10.0
Redwood City, CA (P)	20,000				1.5		1.5
Sacramentd, CA (P)	30,000	40,000	— —	- -	1.2		1.2
Stockton (P)	35,000	40,000			1.2		1.2
Astoria (P)	50,000				5.0		5.0
Portland (P)	55,000				3.0		3.0
Coos Bay (P)	35,000				3.0		3.0
Kalama (P)	50,000				7.5		7.5
Bellingham (Cherry Point)(P)	100,000+				1.2		1.2
Dupont, Washington (P)	100,000+				3.0		3.0
Grays Harbor (P)	40,000	60,000			3.0		3.0
Anchorage (P)	100,000+				3.0		3.0
Trading Bay (P)	100,000+				3.0		3.0
TOTAL WEST COAST			8.0	3.0	69.1		72.1

EXISTING AND POTENTIAL EFFECTIVE CAPACITY FOR HANDLING EXPORT COAL AT U.S. PORTS

(millions of short tons)

Port/Terminal	Vessel Size (DWT)		Existing Capacity** (10^6 tons)		Effective Capacity Expansion (10^6 tons)		Total Mid to Long-Term* Effective Capacity, 1985 (10^6 tons)
	Seaway	Interlake	Designed	Effective	Planned	Underway	
Great Lakes							
Ashtabula, OH (E)	25,000	60,000		12.0			12.0
Conneaut, OH (E)	25,000	60,000		13.5			13.5
Erie, PA (E)	25,000	60,000		1.2			1.2
Sandusky, OH (E)	25,000	60,000		7.5			7.5
S. Chicago, IL (E)	25,000	60,000		8.0			8.0
Superior, WI (E)	25,000	60,000		12.0			12.0
Toledo, OH (E)	25,000	60,000		24.0			24.0
TOTAL GREAT LAKES				78.2			78.2

Annex VI e)

RECAPITULATION OF EXISTING AND POTENTIAL EFFECTIVE CAPACITY FOR HANDLING EXPORT COAL AT U.S. PORTS

Port/Terminal	Existing Capacity** (10^6 tons)		Effective Capacity Expansion (10^6 tons)		Total Mid to Long Term Effective Capacity, 1985 (10^6 tons)
	Designed	Effective	Planned	Underway	
East Coast	145.8	77.9	122.8	38.0	235.7
Gulf Coast	36.0	31.1	95.9	5.0	132.0
West Coast	8.0	3.0	69.1		72.1
Great Lakes		78.2			78.2
TOTAL UNITED STATES		190.2	287.8	43.0	518.0

(E) Existing Facility
(P) Potential Facility

Source: Maritime Administration. The columns showing capacity expansion and effective capacity are not dependent upon the deepening of channels at the respective ports; however, the column showing proposed vessel size is dependent upon the completion of dredging projects.

* Based on survey of U.S. ports, using 1985 as nominal date for mid- to long term coal port development plans.

** Existing ports with an effective annual throughput of less than 1.0 million tons are not included.

*** Current 3.0 million tons effective capacity not included in the 1985 effective total at Morehead City bulk terminal because coal export operations will shift to Radio Island sites.

Compiled By: Office of Port and
Intermodal Development
Maritime Administration
June 1, 1981

Annex VII

USA Documents

Public Affairs Office - United States Mission To The European Communities

USAD 76 July 20, 1981

U.S. COAL EXPORT POLICY STATEMENT

ADMINISTRATION ANNOUNCES PROGRAM TO STIMULATE COAL EXPORTS

WASHINGTON -- THE REAGAN ADMINISTRATION SAYS THAT A SUBSTANTIAL INCREASE IN U.S. COAL EXPORTS IS INEVITABLE AND OUTLINED A NUMBER OF PROPOSALS IT WILL PURSUE IN THIS DIRECTION.

THE EXPORT INITIATIVES, MADE PUBLIC JULY 17, INCLUDE A RELAXATION OF SURFACE MINING REGULATIONS AND EFFORTS TO ENCOURAGE FOREIGN INVESTMENT IN PORT FACILITIES.

FOLLOWING IS THE TEXT OF THE STATEMENT RELEASED BY THE COMMERCE DEPARTMENT:

(BEGIN TEXT)

IN RECENT YEARS, THE PRICES OF OIL AND NATURAL GAS HAVE RISEN RAPIDLY, AND THOSE FUELS NOW COST TWO TO THREE TIMES AS MUCH AS COAL FOR EQUIVALENT ENERGY. THIS ADMINISTRATION BELIEVES THAT A SUBSTANTIAL INCREASE IN THE INTERNATIONAL STEAM COAL TRADE IS BOTH INEVITABLE AND DESIRABLE, AND WE FAVOR GREATER AMERICAN PARTICIPATION IN THAT TRADE.

THE UNITED STATES HAS MORE ECONOMICALLY RECOVERABLE COAL RESERVES THAN ANY OTHER NATION. IT IS ESTIMATED THAT MORE THAN ONE-FOURTH OF THE WORLD'S COAL RESERVES ARE IN THE UNITED STATES. PRIVATE COMPANIES ARE RESPONDING TO INCREASED MARKET DEMAND FOR COAL BY INVESTING IN THE FACILITIES NECESSARY FOR MINING, INLAND TRANSPORTATION, HANDLING, AND OCEAN TRANSPORTATION OF COAL TO SUPPLY FOREIGN, AS WELL AS DOMESTIC MARKETS.

THE ANTICIPATED BOOM IN THE STEAM COAL TRADE, ALONG WITH OTHER FOREIGN TRADE DEVELOPMENTS, IS ENCOURAGING THE CONSIDERATION OF DREDGING OF CHANNELS AND PORTS TO ACCOMMODATE LARGER AND MORE ECONOMIC VESSELS. THE ADMINISTRATION HAS PROPOSED LEGISLATION TO RECOVER THE COSTS OF FUTURE DEEPENING AND MAINTENANCE OF CHANNELS NOT APPORTIONED TO GOVERNMENT-OWNED VESSELS. THE LEGISLATION PROVIDES FOR FEES FOR FEDERAL SERVICES, PAYABLE BY LOCAL PORT AUTHORITIES AND PUBLIC BODIES, AND AUTHORIZES THEM TO ASSESS FEES TO CHANNEL USERS. WHERE THE LOCAL PUBLIC BODY IS WILLING TO PROVIDE ITS OWN FINANCING FOR IMPROVEMENTS AND PAYS THE COST DURING CONSTRUCTION, THE PROJECT WOULD NOT HAVE TO BE SEPARATELY AUTHORIZED BY CONGRESS FOR PLANNING OR CONSTRUCTION. THUS, PORT IMPROVEMENT CAN PROCEED AT A PACE CONSISTENT WITH COMMERCIAL DEMAND RATHER THAN BUDGETARY OR POLITICAL CONSTRAINTS.

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THE FEDERAL GOVERNMENT'S ROLE IS NOT TO SUBSIDIZE COAL EXPORTS, BUT TO EXPEDITE THEM. KEY TO THIS IS THE ADMINISTRATION'S PROGRAM TO REDUCE DELAYS CAUSED BY CURRENT REGULATIONS AND PERMITTING PROCEDURES FOR ALL INDUSTRIAL FACILITIES, INCLUDING THOSE INVOLVED IN THE COAL EXPORT TRADE. THESE CONCERNS WILL BE ADDRESSED AS A PRIORITY IN THE ADMINISTRATION'S GENERAL PROGRAM TO REDUCE REGULATORY DELAY AND UNCERTAINTY IN THE ECONOMY. THE ARMY CORPS OF ENGINEERS WILL IMPROVE ITS ABILITY TO EXPEDITE PERMITTING AND CONSTRUCTION OF PROJECTS, BOTH PUBLIC AND PRIVATE. ALL GOVERNMENTAL BODIES WILL WORK TO ENSURE THAT FEDERAL POLICIES ARE MINDFUL OF, AND DO NOT IMPEDE, EXPORT NEEDS AS WELL AS DOMESTIC NEEDS. THE ADMINISTRATION WILL WORK TO ENSURE THAT COAL LEASING TARGETS AND PROCEDURES TAKE DUE CONSIDERATION OF POTENTIAL EXPORT DEMAND.

FOREIGN COAL BUYERS HAVE INDICATED SOME WILLINGNESS TO PARTICIPATE FINANCIALLY IN DEVELOPING AND EXPORTING AMERICA'S COAL. THIS WILL BENEFIT BOTH PARTIES, ALLOWING BUYERS SECURITY AGAINST ECONOMIC FLUCTUATIONS WHILE FREEING AMERICAN CAPITAL FOR OTHER PURPOSES. FOLLOWING TRADITIONAL AMERICAN POLICY, THIS ADMINISTRATION WELCOMES SUCH FOREIGN PARTICIPATION, CONSISTENT WITH STATE AND FEDERAL LAW.

THE UNITED STATES INTENDS TO MAINTAIN A SOLID INTERNATIONAL REPUTATION AS A RELIABLE SUPPLIER OF COAL. CONTRACTS ARE ENFORCEABLE IN AMERICAN COURTS, AND THE UNITED STATES GOVERNMENT HAS NEVER RESTRICTED COAL EXPORTS, EVEN DURING STRIKES THAT HAVE REDUCED DOMESTIC SUPPLIES. I CAN TODAY AFFIRM THAT THE ADMINISTRATION WILL NOT INTERRUPT COAL TRADE UNDER CONTRACTUAL COMMITMENTS UNLESS FORCED TO DO SO BY A SEVERE NATIONAL EMERGENCY, AND WE WOULD WORK WITH OUR TRADING PARTNERS TO MINIMIZE ADVERSE IMPACTS IN ANY SUCH EVENT. (END TEXT)

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FACT SHEET - ADMINISTRATION COAL EXPORT POLICY

BACKGROUND

In recent years, the prices of oil and gas have risen rapidly and international supplies have been neither stable nor reliable. The effect has been to depress economic growth and exacerbate inflation in the United States and many foreign nations.

Concerns over the price and availability of oil and gas have stimulated worldwide interest in coals potential to meet future energy needs. There is a growing international awareness of the economic advantages of coal. The export of U.S. coal for Foreign consumption would stimulate the U.S. economy while advancing the economic health and stability of our allies and trading partners.

The international market for coal is growing at rapid rates and domestic coal producers and transporters have more than doubled exports in two years from 41 million tons in 1978 to 92 million tons in 1980. Continued private development of this market will be strengthened by the overall administration tax, budgetary, and regulatory reforms; by the presidents reaffirmation of our governments commitments not to disrupt coal exports unless forced to do so by a national emergency; and by our welcoming foreign investment in coal projects, consistent with existing federal and state laws. The federal government's role is not to subsidize coal exports but to expedite them.

The United States has more demonstrated coal reserves than any other nation — over 475 billion tons, about one-fourth of world resources. The United States ranks as the world's largest coal producer and exporter. In 1980, 835 million short tons were mined and about 92 million tons were exported. These exports consisted of 65 million tons of metallurgical coal and 27 million tons of steam coal. While exports of metallurgical coal are not expected to increase dramatically, industry analysts have forecast U.S. steam coal export volumes as high as 50 to 70 million tons by 1985.

Expansion of U.S. coal exports depends on the ability of U.S. suppliers to remain competitive and to maintain their reputation for reliability. The private sector's actions, coupled with administration policy and regulatory reform are expected to be sufficient to meet projected increases in demand. Investments already underway or planned could expand port loading facilities from less than 100 million tons of annual capacity currently to as much as 290 million tons by 1985. Over 43 million tons expansion is already underway. this expansion should eliminate the delays which foreign buyers have experienced recently at U.S. ports.

Expansion of coal exports offers substantial benefits to the U.S. economy. It creates jobs in the coal transportation, handling, and related industries, has favorable balance-of-payments effects, and reduces world petroleum consumption. Coal exports will benefit from the administration's program to increase productivity and encourage investment throughout the economy. The following specific administration actions are being implemented to allow the private sector to move forward:

A. CHANNEL DEEPENING

It is anticipated that, by the end of the 1980's, significant volumes of the world trade in coal and other bulk commodities will be transported in more economical, deep draft vessels. These larger vessels cannot call at major U.S. coal ports unless the channels are deepened. Dredging a channel can cost .5 billion dollars or more and is subject to a lengthy federal review, authorization, and appropriation process that can take up to 15 years.

Financing: The administration has proposed legislation to allow justifiable projects to be undertaken, with the costs borne by the local governmental unit which may pass them on to the ultimate beneficiaries through user fees. Where new construction is desired, the local port authority or public body has three options:

Follow existing procedures for authorization by Congress, allow the federal government to finance the Corps of Engineers work, but repay the costs through fees charged to port users or other revenues.

Provide its own financing through bonds or other means to repay the cost of the Corps of Engineer's work, effectively bypassing the authorization process, saving as much as two to three years.

Provide its own financing and contract directly with a private firm for construction, making certain that the project meets environmental and safety requirements.

Expedited Planning: The President's budget provides for expedited planning and engineering by the Corps of Engineers for a number of potential coal port projects to allow earlier completion of those projects determined to be desirable.

Technical Review: The administration will withdraw the January 1979 Executive Order which located the responsibility for water projects technical reviews in the Water Resources Council. This responsibility will be given to the Office of Management and Budget, allowing a less cumbersome and faster review process for most water projects, including coal port proposals.

Regulatory Relief: The President's Task Force on Regulatory Relief has selected the regulations implementing Section 404Q of the Clean Water Act for intensive review by the Corps of Engineers. This review will complement two ongoing efforts by the Army Corps of Engineers to expedite permitting decisions:

The Corps is required under section 404Q to coordinate regulatory decisions with other environmental agencies. Such coordination has involved unnecessary reliance on centralized decisionmaking, and the corps is reopening negotiations to place more authority at local levels.

The corps is attempting to issue additional, minor permits on a nationwide basis, releasing more staff time for major water projects such as coal ports.

B. REGULATION OF COAL PRODUCTION AND LEASING

Surface Mining Regulations: The current regulations that apply to surface coal mining contain many rigid design and engineering standards. The Department of Interior is reviewing these regulations and rewriting them to emphasize more flexible design standards that will meet the performance requirements of the Surface Mining Control and Reclamation Act of 1977.

Leasing Of Federal Coal: In the past, the Department of Interior set targets for leasing federal coal reserves that attempted to match projected demands with leased supplies. Because it is impossible to project demands precisely, this strategy ran the risk of underleasing, with consequent shortages and high prices. The Department is restructuring this program to expedite leasing and to increase the quantities available to all three relevant markets: current domestic consumption, current exports, and the market for unproduced coal reserves. Since the majority of western coal reserves are on federal lands, their increased availability will help to prevent shortages and resulting high prices.

Due to statutory restrictions, no coal lease sale may be held unless the land containing the coal deposit has been included in a comprehensive land use plan. The Department of Interior is preparing revisions to the land use planning regulations to expedite review and to ensure that coal mining will be accorded its proper value relative to all other possible land uses. The objective of the latter action is to allow federal lands to find their best use.

C. INLAND TRANSPORTATION

Railway Transportation: The cost of rail transportation will be determined under new rules developed by the Interstate Commerce Commission pursuant to the 1980 rail legislation. This legislation permits shippers to sign long-term contracts which provide greater assurance of price stability.

Inland Waterway Transportation: Inland waterway transportation is cost competitive with other modes, but rapid increases in volume of shipments could exceed the capacity of locks at selected sites. The administration's user fees legislation will allow financing of necessary improvements and expansion with the costs borne by the beneficiaries of the improvements rather than the general taxpayer.

D. COAL EXPORT PROMOTION

Coal Export Seminars: During 1981, the Commerce Department will hold coal export seminars at locations in the U.S. where coal is produced, marketed or exported. These seminars, which will complement private sector, state and local government promotional activities, will be designed to publicize U.S. coal export opportunities and overseas marketing techniques. Special information will also be provided on the development of coal transportation systems, including port development and channel dredging.

Coal Trade Missions: The overseas portion of the Commerce Coal Export Promotion Program will feature coal trade missions involving the coal industry, state and local government entities, coal associations and port authorities. These missions will visit major coal consuming nations to encourage coal trade development and to demonstrate the commitment of U.S. coal suppliers over the long-term.

Export Opportunities: In addition to these promotional activities, the Commerce Department will collect and maintain a base of special information on coal export opportunities identified by the Foreign Commercial Service.

Export Counseling: The U.S. Commercial Service will provide special coal export counseling services at its 47 district offices to assure that private entities, state and local governments are aware of coal export opportunities.

E. COAL EXPORT FINANCING

Private Sector Financing: Private interests in the coal, energy, railroad, banking and other fields are expected to provide funding for coal production, transportation and port facility improvements. Such investment will be to the industrys advantage and will be facilitated by various aspects of the coal export policy.

Foreign Equity Investment: Foreign coal buyers have indicated some willingness to participate financially in developing and exporting America's coal. This will benefit both parties, allowing buyers security against economic fluctuations while freeing American capital for other purposes. Following traditional American policy, this administration welcomes such foreign participation, consistent with state and federal law.

Investment Assistance Services: Consistent with state and federal laws, the Commerce Department will facilitate foreign investment and joint ventures in the development of U.S. coal mining, processing, transportation, and port facility improvement.

F. RELIABLE SUPPLY

Maintain International Reputation: The United States intends to maintain a solid international reputation as a reliable supplier of coal. Contracts are enforceable in American courts, and the United States Government has never restricted coal exports, even during strikes that have reduced domestic supplies. The administration will not interrupt coal trade under contractual commitments unless forced to do so by a severe national emergency. And we would work with our trading partners to minimize adverse impacts in any such event.

FACTS AND FIGURES ABOUT
COAL IN THE EUROPEAN COMMUNITY

Background brief prepared by the Coal Directorate,
Directorate-General Energy, Commission of the
European Communities, Brussels (Belgium) (1)

26 June 1981

1. The European Community (EC) is the world's largest overall trading partner. It is also the largest buyer on the world coal market. Imports of bituminous coal in the current year are estimated at 77 million tonnes (mt). Total coal consumption of the EC was 310 mt in 1979 and 1980 resp. (metric tonnes; t = t). Statistics given do not include Greece which has become an EC Member State as of January 1, 1981.

2. Bituminous coal now represents more than 20 % of the EC's PRIMARY ENERGY consumption as can be seen from the following table (figures in oil equivalent):

	1978		1979		1980	
	mtoe	%	mtoe	%	mtoe	%
Bituminous coal	175.5	19.0	190.9	19.7	191.7	20.7
Lignite	26.8	2.9	28.9	3.0	28.8	3.1
Oil	512.7	55.4	525.2	54.2	479.6	51.8
Natural gas	160.6	17.4	172.5	17.8	168.1	18.2
Nuclear energy	33.9	3.7	37.2	3.8	42.6	4.6
Other	14.9	1.6	15.1	1.6	15.0	1.6
Total	924.5	100.0	969.7	100.0	925.7	100.0

The EC cannot cover even half of its energy requirements from indigenous sources. Well over 80 % of its oil is imported, and oil is still by far the most important energy source.

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(1) More specific information may be obtained from the Delegation of the Commission of the European Communities in the United States, 2100 M St. N.W. (Suite 707), Washington, DC 20037 or directly from the EC-Commission, Directorate XVII-B, Rue de la Loi 200, B-1049 Brussels (Belgium).

It needs, therefore, no explaining why the EC is faced with major problems with regard to its energy supply. Energy policy both on Community and national level is to move away from the overdependence on oil and to increase energy efficiency. Some results have already been achieved, partly due to the development of UK North Sea oil, and partly due to efforts made in saving energy.

In May 1980 the EC Council of Ministers set as its 1990 objective that dependence on oil should fall from its current level of 52 % to 40 %. In order to put this policy into practice, the ministers set a further goal whereby 70 to 75 % of the electricity generated by 1990 should be derived from solid or nuclear fuels. At present these fuels provide a total of 57 % (nuclear 15 %, lignite and peat 8 %, bituminous coal 34 %).

3. The coal market in the EC is usually divided into the market of the utilities, that of coke-ovens, the industrial and the domestic market. In 1980 coal consumption in these four sectors was as follows :

Utilities*	182	million	tonnes
Coke-ovens	88	"	"
Industry + others	22	"	"
Households	18	"	"
	310	million	tonnes

*incl. private industrial producers and pithead power stations

4. The future development of coal consumption in the EC clearly tends to be growing. Estimates for the year 2000 run between 450 and 600 mt, this is 50 to 100 % more than today. The gap between these figures reflects the uncertainties overshadowing any forecast: economic growth, increase of energy use and effects of energy saving, development of electricity consumption, the use of nuclear energy, the speed at which industry converts to coal-firing, the future size of the steel industry, etc.

While coal consumption by private households and other small users will decline further a completely new market for coal could open up in the '90s: gasification and liquefaction. Pronouncements on the future profitability of synfuels are, however, as cautious as the assumptions on future oil prices are speculative.

For the horizon of 1990 a total coal consumption of 360 to 390 mt in the EC might not be too far from reality. The fastest-growing sector of coal consumption will be the utilities.

5. In 1980, the EC's coal production totalled 247 mt of which 6.3 mt were mined in Belgium, 18.1 mt in France, 94.5 mt in W-Germany and 128.2 mt in the United Kingdom.

   Intra-EC deliveries of coal amounted to 16.5 mt of coal and 7.6 mt of coke.

   The coal-producing Member States (as well as the Community) have stated their interest in maintaining national production though the vast majority requires State assistance. On average 17 US-dollars were paid as financial aid per tonne of coal mined in the EC during 1980.

   Since subsidies are limited by the possible tax burden the public purse can absorb it is not certain that EC production can be brought up to the 270 mt recommended by the EC Commission in 1974. But there is a clear interest for the EC as a whole to maintain a strong coal mining industry because of the vulnerability of its energy supplies. Coal is the only source of energy available to Europe in any great quantity. Mention should be made in this context of the huge financial and balance-of-payments constraints imposed upon the EC Member States which result from an oil import bill of US-$ 105 billion plus.

6. Despite its interest in having a large coal industry the EC is not protectionist. Imports of coal from third countries have risen continuously since the oil crisis broke in 1973. They reached a level of 73.6 mt last year, thus more than doubling the 1973 figure of 30 mt.

The next table traces the current distribution of imports among EC Member States (A) and shows which countries provided the coal (B). Since dramatic changes have taken place during the two last years figures are shown both for 1979 and 1980 (in million tonnes):

	1979	1980	Difference
A. By country of destination			
Belgium	5.9	7.3	+ 1.4
Denmark	6.7	9.1	+ 2.4
France	19.5	22.6	+ 3.1
Germany (FR)	6.9	7.3	+ 0.4
Ireland	1.1	1.0	- 0.1
Italy	11.2	14.3	+ 3.1
Luxembourg	0.2	0.2	± 0
Netherlands	3.8	5.0	+ 1.2
United Kingdom	4.0	7.2	+ 3.2
	59.3	74.0	+ 14.7
B. By country of origin			
USA	14.8	28.3	+ 13.5
Canada	0.9	0.8	- 0.1
Australia	8.0	7.8	- 0.2
South Africa	15.9	19.7	+ 3.8
Poland	15.4	13.6	- 1.8
USSR	2.8	2.7	- 0.1
Others	1.5	1.1	- 0.4
	59.3	74.0	+ 14.7
C. By sector of consumption			
Power-station coal	29.9	40.8	+ 10.9
Metallurgical coal	22.3	25.1	+ 2.8
Other use	7.1	8.1	+ 1.0

Imports of metallurgical coal have remained relatively stable and traditionally cover 20 to 25 % of the steel industry's requirements. Imports of steam (thermal) coal - basically for power stations - have risen sharply from 8 mt (1973) to 42 mt (1980). This trend will continue into the future.

The share of US coal in EC imports jumped from 25 % in 1979 to 38 % last year due to steeply growing demand for steam coal in certain EC Member States (e.g. Denmark, Italy, the Netherlands) on the one hand and shortfalls in deliveries from certain suppliers (e.g. Poland, Australia) on the other. The swing of the market to US steam coal was particularly strong as shipments increased by 128 % from 843 000 t (1979) to 9.5 mt (1980). The efforts undertaken by the US coal suppliers/shippers have been appreciated by the coal users in Europe.

7. Unfortunately, these record quantities are associated with record costs. Growing demand on the world coal market together with the aforementioned shortfalls led - not surprisingly - to price and freight increases. A feature that is more worrying and that has led to growing concern among EC coal users is the waiting times and the inherent demurrage charges for transport vessels at US East coast coal terminals. There is now less reliability for regular supply while transport costs across the Atlantic ocean have virtually doubled within less than a year's time.

The additional annual expenditure emerging from demurrage may be estimated at approx. US-$ 350 million plus for the EC economy where these unnecessary costs are particularly felt because of a steeply increased exchange rate for the US-dollar.

Moreover, coal users in the EC feel that the demurrage charge of 10 to 12 dollars per tonne laid upon them is not only increasing the delivered price for US coal in Europe but influences the general price level in world coal trade in spite of the fact that the amount of additional demand for (steam) coal is marginal compared with the total world trade in coal.

Bitter feelings are expressed by those EC steel producers who rely heavily on third-country imports and cannot, in the current steel market situation, pass the higher cost incurred on to their customers.

8. It is urgently necessary to find ways of coping rapidly with this situation concerning all EC Member States. The Community - the EC Commission as well as the governments of the EC countries - is campaigning, in line with the declarations made at the Venice summit and the resolutions voted in the Governing Board of the International Energy Agency (Paris), for substituting coal for oil wherever possible. Now actual and potential coal users are becoming increasingly uncertain if coal is the Promised Land which was shown to them. This is felt to be counterproductive because the switch to coal which has just begun will be delayed or even halted. It would, on the other hand mean that the US economy could miss the opportunity to greatly expand its share of world coal trade.

Again the European steel mills, though traditionally disposing of long-term arrangements for about 80 % of their supplies of US metallurgical coal, fear that regularity and security of supply established through long-term contracts may be in jeopardy for as long as two years and more.

Furthermore, the long waiting times at the US ports disturb both the management of maritime coal transport and orderly stocking in the importing countries thus jeopardizing the stability of supply.

Finally, the artificial immobilisation of a merchant fleet totalling 50 million tdw and more pushes up the general level of freight rates.

9. It is, therefore, of utmost importance that the current bottlenecks between the suppliers in the US and the coal users in the EC be soon removed or, at least, reduced considerably. Representatives of the EC Commission (as well as representatives of EC Member States) already have, on various occasions, drawn the attention of their US counterparts to the situation.

The outgoing US Administration, for their part, have shown their awareness of that situation in a well documented paper, the Interim Report of the Interagency Coal Export Task Force, which was published in January 1981. In its chapter on potential capacity for expanded US coal exports it deals almost exclusively with the long-term problems linked to the coal transport system but makes no mention of the present backlog at US coal ports. Solely in its introductory statement the Task Force indicates that a more rigorous ship reservation system merits consideration for future use by port operators. One may add that coordination of ship and train arrivals needs also to be improved.

The EC coal mission coming to Washington, DC, on 29 June 1981 is interested to know if progress, and of what kind, has been made in this connection since the beginning of the year and to discuss new steps which could possibly be expected in the very near future.

COMMISSION OF THE EUROPEAN COMMUNITIES

COM(81) 229 final

Strasbourg, 6th May 1981

SUBSTITUTION OF COAL FOR OIL IN "OTHER INDUSTRY"

(Communication from the Commission to the Council)

Substitution of Coal for Oil in "Other Industry"

(Communication to the Council)

(1) The Member States of the European Community have set themselves the objective of reducing their dependence on oil imports. Visible progress has been made in energy-saving, but the decisive turning-point in terms of introducing substitutes for oil has not yet been reached. For this, the patterns of consumption have to be changed; more use must be made of alternative sources of energy (coal, nuclear energy). This type of structural change must therefore be encouraged in the industrial sector. The European Council of 27 and 28 April 1980 in Luxembourg, and the Western Economic Summit of 22 and 23 June 1980 in Venice, put out very detailed statements on this subject and expressly recommended a return to coal.

(2) Figures for the potential replacement of oil by coal have been given in some international publications; but, except in the electricity sector, there are few precise ideas about the sectors of consumption in which this objective can be achieved and the technical and energy-policy measures required. The heat requirements of "other industry"[1] form one sector in which coal has suffered particularly serious losses in its share of the market over the past twenty years, initially to fuel oil and subsequently to natural gas. Because of the large number of energy-consuming firms, the variety of energy-consuming plant and, not least, the fact that the statistics are insufficiently broken down, it is also a sector in which it is difficult to obtain an overall view.

(3) The Commission has therefore examined the scope for replacing oil by coal in "other industry". It has prepared a report.

describing at some length the problems involved. The following paragraphs summarise the contents of the report and suggest a number of points for consideration by the Council.

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[1] Statistically speaking, all branches of industry except the energy sector, the steel industry and small industry and crafts.

(4) The calculated replacement potential in the heating requirements of "other industry" appears considerable when it is recalled that coal and coke accounted for 60% of the thermal consumption of this sector in 1960 compared with no more than 9% in 1978 (11 million toe). However, this does not mean to say that coal can make up the ground that is has lost. The situation of supply and demand has changed too much for that; moreover, it will continue to change. The industrial production apparatus, the manufacturing processes and the range of industrial products have changed and will continue to change, precisely because of the need to adopt energy-saving production techniques. In addition, natural gas is an extremely strong competitor to coal, particularly so long as the existing price differential remains.

(5) The only branch of industry in the Community which has so far reverted to coal to any great extent is the cement industry. This industry cannot, however, be taken as representative since its situation as to fuel costs, quality requirements for the coal used and utilisation of the resulting ash (environmental protection) is not the same for other industries.

(6) Although it is impossible to make reliable forecasts, market forces and further refinement of coal-handling and -firing techniques in the course of time can be expected to lead to an increasing use of coal in "other industry". However, on the basis of the energy-policy data now available, it seems clear that, for economic and ecological reasons, this process will be slow. The reasons are as follows:

- The current heat-price ratio between coal and fuel oil is not by itself sufficient to persuade the potential investor to switch to coal. Firstly, the general investment climate is suffering from too many uncertainties regarding economic trends and long-term economic policy. Secondly, the firms are more concerned about their future competitivity than the long-term security of their energy supply. Where firms are investing, production apparatus is given priority over industrial energy-consuming plant.

- The costs for conversion from oil to coal are certainly very high and represent an obstacle. They are difficult to forecast because they depend on the type of investment (new installation, conversion or reconversion of existing equipment) and vary with the size of the boiler. Smaller installations are relatively more expensive than bigger ones. Data available show that the reconversion of a boiler utilizing 50,000 to 100,000 tonnes of coal per annum may necessitate a capital expenditure of 150 to 300 ECU per tonne of oil to be substituted; the conversion of an oil-fired boiler may even cost 300 to 500 ECU per tonne of oil replaced.

- Industrial energy-consumers often have no experience of using coal, especially in countries with a low consumption of coal. This gives rise to a number of reservations which appear insurmountable for psychological reasons. There is a lack of confidence in available technologies and reluctance to use a bulk mineral commodity such as coal. Finally, there are no other plants to serve as an example when seeking information about the appropriate solution for individual case.

- The insecurity felt by industrial energy-consumers as a result of public opinion about the environment and the wait-and-see attitude adopted in energy policy should not be underestimated. Investors are no longer able to make an accurate assessment of the framework of data imposed on them (application of environmental and safety regulations, authorization procedures, etc.).

- Industry has put more and more new fuel-oil and gas boilers into service over the past ten to twenty years. These boilers often are not suitable for conversion to coal; in many cases, they have not reached the end of their useful life. The question of replacing them will not arise until well into the future. Coal-fired boilers are also relatively expensive while the proportion of total production costs accounted for by fuel costs is relatively low; no direct economic advantages can therefore be expected here from changing the source of energy used.

- Existing boiler technology and, in some cases, environmental regulations require the use of suitably cleaned and sized coal; supply is limited and prices are higher. This reduces coal's price advantage over fuel oil.

(7) In these circumstances, it is for consideration what measures must be taken to introduce or to speed up the desired structural change.

The most important condition is that coal should remain attractive to the consumer as a secure and cheap source of energy. In the Commission's view, the conversion process should be encouraged by additional measures on a national as well as a Community level. For this purpose, the following possibilities should be investigated:

- investment incentives;

- promotion of coal-fired reference plant to demonstrate existing coal-firing technologies in regions where these have not yet been applied;

- promotion of new coal-firing technologies using all coal available on the market (usual R & D incentives, support for the construction of demonstration plant);

- converting the heating of public buildings to coal-firing (although this does not come under the branch of industry in question, an example of this type would have a considerable effect);

- promotion of investment in the infrastructure of the carriage and transshipment of coal, right down to the final consumer, including the elimination of legal, administrative or customary-law barriers to optimum utilisation of existing plant;

- improvement of market transparency by publishing comprehensive price comparisons for the various sources of energy at the stage of final consumption;

- clear policy guidelines for environmental protection, reconciling environmental interests with the requirements of energy policy and competitive production. This includes the establishment of standards and building regulations which are precise, realistic and not subject to frequent change;

- better provision of information for industrial energy-consumers on existing technologies, coal qualities and other relevant data by means of conferences, exhibitions, etc.

(8) The Commission requests that the Council should, on 9 June 1981, hold a general exchange of views on these suggestions. Thereafter, the Commission will make specific proposals for Community action as appropriate.

REPORT

on

the substitution of coal for oil in
"other industry"

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I. INTRODUCTION

1. In the fifteen years from 1958 to 1973, coal quickly lost ground to oil as a fuel on the Community energy market. On the one hand, this was due to the increasingly attractive price of oil. On the other hand, the use of oil offered advantages such as a higher calorific value, lower capital costs, more compact firing units, lower operating and labour costs and no problems with ash. Coal's share of total primary energy consumption in the Community thus fell from 57% in 1958 to 19% in 1978; this percentage first fell beneath 50% in 1961.

2. The rapid increase in oil prices since 1973 and the growing uncertainty surrounding supplies have led to a number of political statements – most recently at the two summit conferences in Venice[1] – indicating the need to review coal's role as a source of thermal energy and to use more coal instead of oil in industry in general, if need be with the aid of tax incentives. The Council of the European Communities has stressed – most recently in its Resolution of 9 June 1980 on energy objectives – that an attempt should be made to reduce oil's share of gross energy consumption to 40% by 1990.

3. On the basis of the shift in energy policy, various publications have attempted to forecast potential coal trends at the world or international level. These publications include:
   - "Medium-term guidelines for coal"[2] (Commission)
   - "Steam coal, prospects to 2000"[3]
   - "Coal – bridge to the future"[4]
   - "Outlook for the long-term coal supply and demand trend in the Community"[5]

   All these publications deal with coal markets as a whole, major sectors of use and problems of infrastructure and production.

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[1] Heads of State and Government of the Community: 12-13 June 1980, Western Economic Summit: 22-23 June 1980

[2] OJ C 22 of 30.1.1975.

[3] IEA/OECD – Paris 1978.

[4] Massachusetts Institute of Technology 1980 (WOCOL).

[5] COM(80)117 final.

4. These studies indicate that there should be no doubt that electricity generation will be the biggest market for steam coal, at least until the end of the century. Irrespective of this, increased use of coal in the "other industry" sector could also help reduce the Community's dependence on imported oil. A report[1] by the ECSC Consultative Committee refers to the future importance of replacing oil by coal for industrial energy consumption and recommends that the Commission examine substitution possibilities in the industrial steam-raising market.

The Association of the Coal Producers of the European Community has also worked out detailed studies on substitution problems in "other industry."[2,3] These studies give a favourable assessment of possible future coal trends and suggest how the substitution process can be launched and accelerated.

5. Various bodies and professional organisations have held public meetings, especially in the United Kingdom, France and the Federal Republic of Germany, to discuss the complicated technical and economic aspects of converting oil-fired plant to coal in the industrial sector. The sometimes extensive conference reports contain interesting findings which are merely referred to here without further detail.

6. The publications and statements have prompted the Commission to state its position on this very complicated range of problems. However, this report cannot go into details or deal with individual cases. The Community

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[1] "Medium and long-term perspectives for coal in the Community" by Mr. H.J. Thomas, OJ C 161 of 28 June 1979.

[2] Report on the prospects for coal consumption in the "other industry" sector of the Community energy market, September 1979 (unpublished).

[3] Technically possible use of coal in the "other industry" sector of the European Communities up to the year 2000, April 1980 (unpublished).

covers too large an area for this; conditions in the individual Member States, in the branches of industry and in the companies and the size, location and technical equipment of the companies vary too much for a common denominator to be found. For the same reasons the investment costs of conversion can only be treated in a very general manner. Of course, it is possible to give a general indication of the aspects on which individual companies plan their decision-making concerning the conversion of existing firing plant. In order to give the reader some idea of the range of technical and economic - and even psychological and subjective - factors which arise, Annex I lists these aspects, albeit without any claim to completeness. It is not possible to quantify these aspects or give a rational assessment of them in this study. This is not the Commission's responsibility but that of the companies themselves, the engineering consultancy services and the fuel suppliers. This study contains only an overall summary of the problems and prospects of increasing coal consumption in the industrial sector and indicates measures which could be taken to promote and accelerate the transition from oil-firing to coal-firing.

7. For the purposes of this study, the following markets are not included either because they are dealt with in other publications or because it is not yet possible to predict their technical development satisfactorily:

- the iron and steel industry and foundries;
- chemical feedstocks;
- coal gasification and liquefaction.

The household market is also excluded from this report. However, there are repeated references to the bulk heat market or to large-scale heating. This involves space heating for factories, offices, public buildings of all types and dwellings supplied by large plants with or without the combined generation of electricity. This market cannot be included

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1) See Chapter II below

in the tables because of statistical difficulties, but the problems and prospects of this market are very similar to those of small and medium-sized industry. Most of the statements in this report therefore apply equally to large-scale space heating.

The report is limited in area to the nine Member States of the Community. Greece, which became a member of the Community on 1 January 1981, could not be incorporated as no complete or comparable statistics were available.

8. This report is intended to prompt general discussion in all Member States of how to overcome the current obstacles to the replacement of oil by coal and of the extent to which free market forces need to be supplemented by energy policy and other administrative measures in order to accelerate this process in the industrial sector. This report is also intended to provide general information for those industrial companies toying with the idea of converting their energy-consuming plant to coal or wishing to invest in new coal-fired plant.

II. PAST TRENDS

9. Looking back is basically of only historical significance, but the past contains important pointers for analysis of the current situation and may help to analyse it.

This analysis requires suitable statistical material enabling comparison of different periods and different countries. The field of examination must also be defined and statistically demarcated.

A. Field of examination

10. Annex II of this report contains statistical tables of the trend in final energy consumption of the "other industry" sector from 1960 to 1978, the last year for which complete statistics were available when this report was drawn up. Figures are given for the individual Member States of the Community (Table 1) as well as for the individual sources of energy and branches of industry (Tables 2-11).

The term "other industry" is used in the Community's official statistics and covers all branches of industry except the steel industry, the energy sector and small business.

The term "final energy" covers all sources of energy used in industrial production; however, non-energy consumption is excluded. The energy used by industrial self producers of electricity is also disregarded in the statistics for final energy consumption. This is in keeping with the objectives of this study which intends to analyse only the substitution procedures for covering industry's actual requirements of heat. For information purposes, Tables 2-11 of Annex II state the amounts used by industrial power plant in 1978 to give some idea of the orders of magnitude involved.

By restricting this study to industrial heating requirements and the substitution processes in this sector, we are forced to disregard electricity consumption, as electricity is used in industry for only quite specific heating processes (metallurgy), chemicals and for covering power and lighting requirements. Electricity consumption is therefore listed only in statistical table 1 of Annex II.

The "other fuels" listed in table 1(patent fuel, brown coal briquettes, derived gases, etc.) are also disregarded as they are relatively unimportant for the substitution procedures.

This leaves the study with the following major competing energy sources: 1)

hard coal
coke
light fuel oil
heavy fuel oil
natural gas.

"Other industry" in the Community used 123.1 million toe of these energy sources in 1978. This quantity is equivalent to 94% of the thermal final energy consumption of "other industry". The figures contained in Tables 2-11 of Annex II break down this market according to Member State and individual branch of industry whenever these statistics were available or of significance for the study.

11. All the figures are expressed in toe (tonnes oil equivalent). As various statistical bases analysed contained figures in toe or t=t, these figures had to be converted or rounded off so that the aggregation of the individual figures does not always tally with the totals.

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1) A large proportion of these figures are our own assessments, since we had to disregard industrial self producers of electricity and differentiate between light and heavy fuel oil.

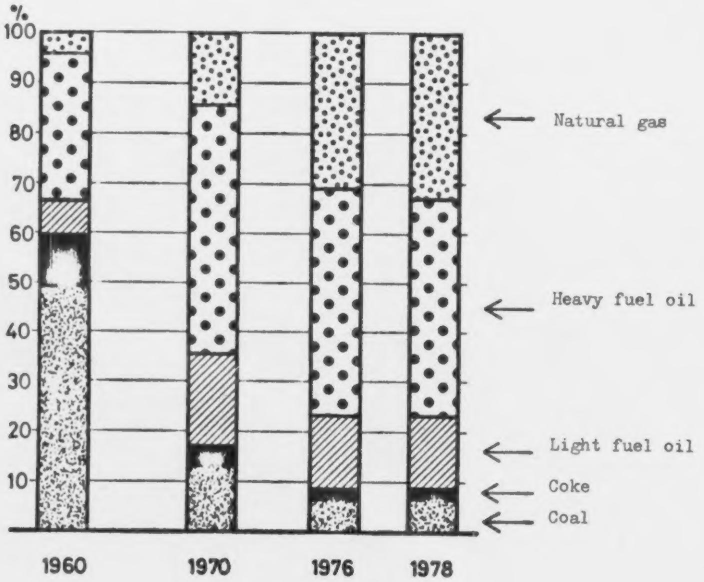
B. Historical background

12. Two stages of development stand out when examining the substitution processes in "other industry". Coal, which still covered almost half of energy demand in 1960, was largely ousted by oil by 1970. The most important feature of the trend in the seventies was the advance of natural gas which not only ate further into coal's share of the supply market but also increasingly replaced light and heavy fuel oil. Since 1976 there has been a slight increase in the use of coal (see Figure A and Table 2 of Annex II).

Figure A

Final consumption of selected energies in "other industry" in the Community

(Percentage shares)



In 1960 hard coal and coke still accounted for 59.3% (about 49 million toe) of total thermal consumption; by 1978 this figure had dropped to 8.8% (around 11 million toe).

The reasons behind this trend are known; they were already mentioned in the introduction.

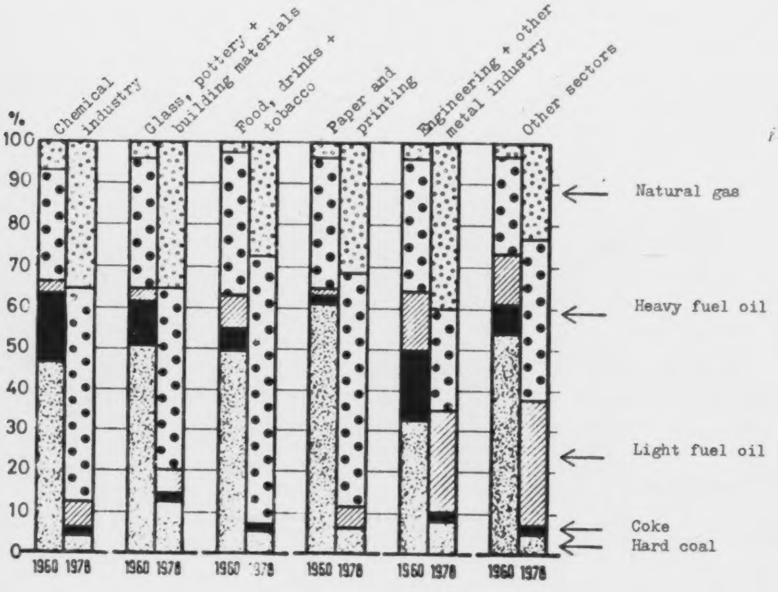
For a wide variety of reasons (discussed in Chapter V) it would be illusory to assume that the quantitative decline in coal consumption could be used as the basis for conclusions about the existing substitution potential or future coal consumption.

13. Looking at the trend in individual branches of industry (Figure B), it can be seen, that although coal's market losses have been considerable in every sector, there are differences; this is because these branches of industry use energy in different ways in accordance with the wide range of production processes

Figure B

Final consumption of selected energies in "other industry" by sectors

(Percentage share of energy sources)



applied. The trend in the chemical industry and in the glass, pottery and building materials sector is particularly important in this respect. These are by far the largest industrial energy-users and it is in these two sectors that the absolute drop in coal sales was the highest.

14. The substitution of other fuels for coal has so far continued unabated in the chemical industry and, at just around 4%, its share of supply in 1978 was lower than in other sectors. Increasing use of natural gas in the seventies has not reduced consumption of heavy oil in this sector, but it has slowed down the rates of increase.

15. The trend in the glass, pottery and building materials sector was basically more favourable for coal. This sector remained the largest user of coal, mainly because of particular importance of cement manufacture during the whole period covered by this report, as there are no particular problems associated with combustion technology or ash utilization in this sector and as coal's price advantage over oil can be realised more quickly. The cement industry is not therefore representative of other industries. As a result, it is the only consumer group in which the use of coal has increased to an appreciable extent since 1975/76 and in which coal accounts for a somewhat larger share of supply (12.4%). However, there are considerable differences here from one country to another. Although large quantities were still used in this sector in France and the Federal Republic in 1960, coal had almost completely disappeared from this sector in 1978 (see Tables 5 and 6 of Annex II).[1] In Belgium and Denmark, on the other hand, coal consumption has even increased since 1960 (see Tables 3 and 4 of Annex II). Although the use of coal in this sector in the Community as a whole increased by 0.8 million toe between 1976 and 1978, most of this was due to the trend in the Belgian cement industry.

16. Coal also continues to register somewhat higher sales in the engineering and other metal sector (1.5 million toe), mainly due to the specific conditions in the United Kingdom. Natural gas and light fuel oil are generally the most important energy sources in this sector; coal substitution has not continued to increase since 1976 and 1978.

17. Of the subsectors selected, food, drink and tobacco and the paper and printing industry today have the lowest coal consumption; they tend to depend on heavy fuel oil more than all other sectors. It is only in the United Kingdom and the Federal Republic of Germany where coal continues to play any role worth mentioning in this sector. Since 1975/76 coal consumption has remained generally static or has increased slightly.

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[1] Recently, however, there has also been an increase in the coal consumed by the cement industry in these two countries.

18. Finally, it can be seen that, while coal consumption by "other industry" was still relatively evenly spread among the various branches in 1960, by 1978 as much as 40% of it was concentrated on the glass, pottery and building materials sector. Furthermore, there are also considerable differences from country to country; in this connection, the proportion of supply accounted for by coal is unaffected whether the country in question produces (coal's share in Germany : 6%, in the UK: 15%) or imports coal (coal's share in Italy: 1%, in Denmark: 22%).

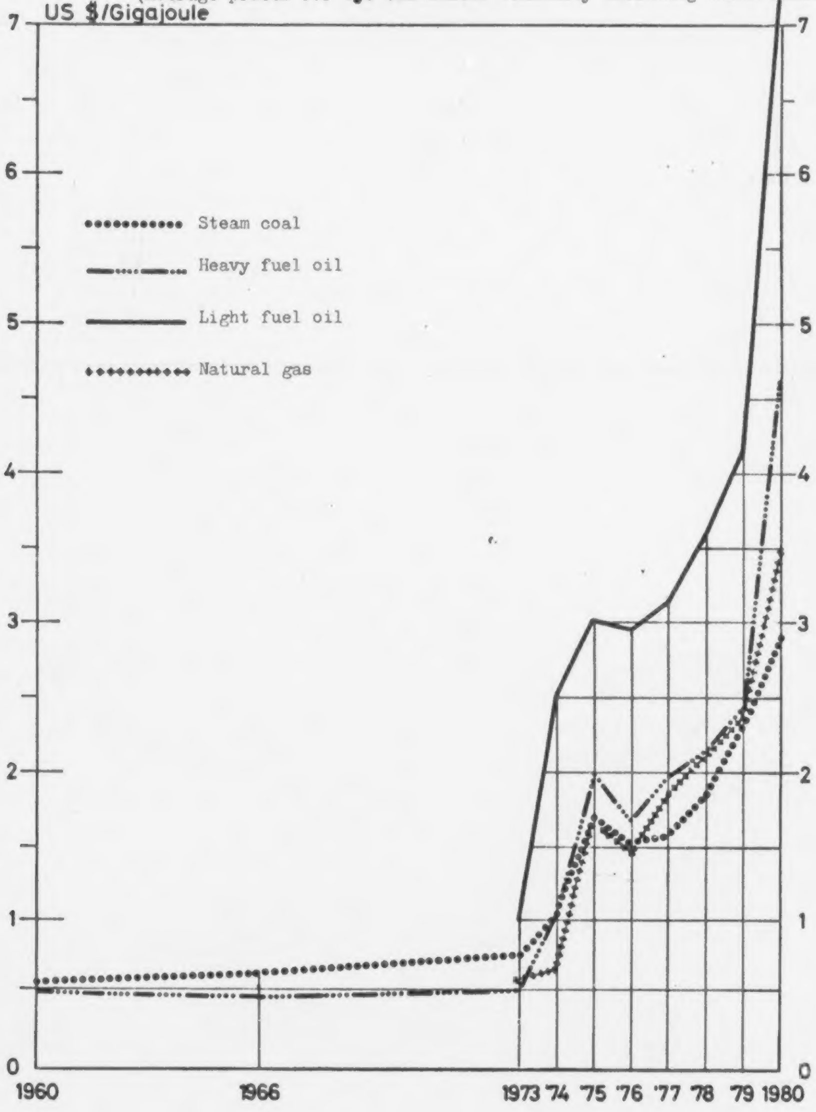
19. There are many reasons why coal's share of the market has fallen (technical handling, high investment expenditure, the problem of ash, environmental regulations, etc.). The most important determinant, however, was the fact that since 1958/1960 the price per unit of heat shifted in favour of rival sources of energy and away from coal (see Figure C).

20. Only information for the six-member Community could be included in Figure C as the period covered starts in 1960. For the purposes of comparison, the calculations since 1973 are not extended to the nine-member Community. The figures given are the average delivered prices weighted according to the quantities used; in the case of coal, only the steam coal prices as a weighted average of Community coal and imported coal are covered.

The figure shows that the price per thermal unit for coal from 1960 to 1973 was always higher than the equivalent price for heavy fuel oil. However, from 1975 onwards the price for coal lay below that for heavy fuel oil and since 1977 the price for coal has been the lowest in comparison with all rival energy sources, including natural gas. One of coal's basic handicaps has therefore been eliminated, at least for large consumers such as power stations, satisfying an important pre-condition for power stations once again using more coal in future. In the case of industry, however, the price ratio for 1980 shown in figure C can not yet be regarded in the main as satisfactory; there can be no self-triggering of a broad-based substitution process in this sector until the heat-price ratio between coal and oil reaches at least 1 : 2.

Figure C

Delivered prices of various energy sources for industrial users
(Average prices for the six-member Community excluding value-added tax)



III. TECHNOLOGY AND THE ENVIRONMENT

A. Technical aspects of the utilisation of energy for thermal purposes.

1. General comments

21. In speaking of industrial energy consumption a distinction is shown between two categories: i) the production of thermal energy, and ii) the production of driving power. Except in the cases of electric furnaces, or heating by electrical means, the heat requirements are met by burning the oil, gas or coal at the point where the energy is actually used. On the other hand, electricity is normally used to provide the driving power for machines. In practice, it is only in covering its heat requirements that industry has any appreciable opportunity to save oil by using coal.

There are no energy consumption statistics broken down into technical categories (e.g. thermal energy, motive power, temperatures, controllability of temperature and cleanness of the combustion gases). The following information is therefore based on empirical data from the Commission's investigations. According to these data, cover of heating requirements is particularly important for the following branches of industry:

- cement, limestone, bricks, tiles, fireclay
- porcelain, glass, earthenware
- paint and enamel drying
- heat bonding methods
- heat treatment in precision engineering
- non-ferrous metals
- chemicals
- oil refineries
- preliminary treatment of textiles and leather
- paper and board
- drying methods
- food, drink and tobacco
- industrial space heating

Not all these branches offer equally good opportunities for the replacemnt of oil by coal. Because of its production techniques, the cement and brick industry is well-suited for conversion. The same cannot be said of other branches of industry where the requirements as regards cleanness and controllability are particularly high.

In addition, the problem of various groups and sizes of coal has to be considered. Coal is not a homogeneous product; the sectors of industrial utilisation vary. Some industrial production methods require specific sizes and qualities of coal.

22. When assessing the possibilities of substitution, the various branches of industry can also be distinguished according to the temperatures involved.

- In the low temperature range (up to around 500°C), it is mainly a question of heat utilization whereby the heat is transferred to a conductive material so that the specific fuel characteristics hardly play any part. This sector offers very good opportunities for substitution.
- The medium temperature range (about 500-900°C) mainly covers metal-processing. There are relatively few possibilities of substitution here.
- In the high temperature range (about 900-1600°C), conductive materials are used only in exceptional cases. The materials heated (glass, pottery, building materials) normally come into direct contact with the combustion products. This sector often offers good possibilities for substitution, but some processes have high requirements which coal cannot always satisfy.

2. Coal-fired plant

23. Industry uses different energy-consuming plant which has to correspond to the requirements raised as regards the type and volume of heat production. These plants can use only certain sizes and qualities of coal and any variation has to be kept within strict limits. It would therefore be of importance in the future to have firing plants which could use all sizes and qualities of coal.

A distinction can be made between the following types of plant :

Boilers

The product being heated does not come into contact with the combustion gases, but the selection of the fuel may be significant as the temperatures must be controllable and corrosion problems must be avoided. By means of hot water or steam, boilers provide process heat and/or space heating. Boilers exist in practically all branches of industry.

Retorts

As with boilers, the product being heated does not come into contact with the combustion gases which heat the containers containing the substance to be processed. The choice of fuel is important as corrosion problems must be avoided and appropriate temperatures must be attained and regulated as necessary.

Retorts are mainly used in the following branches of industry:

(a) Chemicals
(b) Oil refineries

Open furnaces

There is direct contact between the product being heated and the combustion gases. The decisive reason for using more coal would be the basic question of whether the process requires precise regulation and high purity of the combustion gases (particularly low sulphur content). This gives two categories:

(a) Special purity and controllability not required:

- cement
- limestone
- bricks, roof-tiles, fireclay
- certain agricultural drying processes, especially for animal feed

(b) Purity and controllability important:

- glass, earthenware, porcelain
- heat treatment in precision engineering
- most heat bonding methods
- paint and enamel drying

Electric furnaces

Electric furnaces require no detailed examination as the metal industry's heat processes which are involved here can hardly be carried out with coal. The electricity is either taken from the public grid or generated in private plant; the latter eventuality comes into the boiler category.

3. Coal combustion technologies

24. There are four main combustion technologies for medium to large coal-fired plants:

- mechanical stoker or chain grate
- pulverized fuel (coal-dust firing)
- fluidized-bed methods
- coal-oil mixtures

The first two methods have been common for decades and will not therefore be discussed further. Although there are disadvantages in using coal instead of oil in these combustion methods (larger dimensions, complicated operation, need to grind the coal, etc.), there is no technical objection to converting a substantial proportion of existing boilers to coal (nuts, slack, dust), especially as these processes will be given further technical improvement and refinement in future.

Fluidized-bed method

25. **In this technology, small-sized coal or coal up to 36 mm is fed into the combustion chamber in a bed of coal-ash or silica sand. This bed is kept in suspension by a cushion of air blown through perforations in the chamber floor.**

Trials have been conducted for more than ten years with several types of fluidized-bed furnaces and boilers which are now increasingly offered by manufacturers. The advantages of these plants are their compactness, their high combustion intensity and good heat transfer characteristics, the possibility of burning coal of different sizes and qualities and the relatively non-polluting combustion gases; these gases result from the addition of limestone or dolomite to the combustion material in order to prevent discharge of sulphur dioxide. As combustion takes place at medium-range temperatures (800-900°C), smaller quantities of nitrogen oxides are produced than in the burning of pulverized coal where temperatures of around 1800°C are not uncommon.

With increasing experience in the construction and operation of fluidized-bed furnaces and boilers, theseadvantages should to an increasing extent influence favourably the choice of plant for small to medium thermal requirements, especially when converting the units from oil firing. The rather complicated and expensive regulating equipment needed for fluidized-bed combustion means that in practice the lowest level for this type of plant is 3 MW and the upper level is around 20 MW; however, fluidized-bed firing will certainly become more economic than conventional firing.

Apart from the fluidized-bed plants under atmospheric pressure, which are now coming on to the market, experiments are being conducted with plants working under pressures of 10-20 bars, especially in Germany, the United Kingdom and the United States. These plants are even more compact and even less harmful to the environment; they also offer a higher efficiency by using the exhaust gases to drive a gas turbine. However, a good deal of development still has to take place.

Coal-oil mixtures

26. The main value of coal-oil mixtures is that they can be transported and burned in existing facilities for heavy fuel oil with a minimum amount of modification.

An attempt is now being made to use centrally-manufactured standard mixtures which are supplied to the consumer by pipeline or road tanker, stored in oil tanks and burned with little or no drop in boiler performance. To achieve these results, a number of valves and burners would have to be replaced, devices installed to trap the fly-ash, and ash blowers and ash hoppers provided. No additional desulphuring plant would be needed if the sulphur content of the coal used remains within certain limits, i.e. is approximately the same as that of the partly replaced fuel oil.

There have, however, been objections about the rapid wear on the burners and the reduced boiler performance. The plants would possess all the characteristics of a coal boiler and a coal-fired plant would therefore be preferable, at least in new installations.

4. Specific branches of industry

27. This section gives a brief description of the main features of a number of selected branches of industry where there could be substantial conversion from oil to coal. Three important pre-conditions have to exist or be created before conversion can take place: cheap coal, optimum modern combustion techniques and low environmental pollution.

Many of the existing plants in the branches of industry described below were originally designed for coal-firing and were only later converted to oil-firing. Technically, this makes re-conversion to coal-firing a relatively simple matter.

On the other hand, boiler plant designed exclusively to use oil has to be replaced by a new boiler if coal is to be used. This is a relatively expensive step as the specific investment costs for oil and coal-fired boilers with the same heating performance are in a ratio of about 1 : 2.5.

28. Many of the branches of industry described, or the larger undertakings, satisfy one basic condition for using coal on a large scale: they are linked to a bulk transport system (rail, waterway).

The size of the undertaking is an additional factor, because the technical problems involved in converting from oil-firing to coal-firing can normally be resolved more effectively in larger plants than in plants where space is restricted. Costs can also be cut with regard to most subsidiary plants and the labour force required for servicing and maintenance.

Cement

29. The technical problems involved in converting the processes of the cement manufacturing industry from oil to coal are relatively simple and are largely restricted to the storage, transport and grinding of coal. In some cases this problem can be resolved by means of grinding contracts with coal-fired power stations or by setting up central coal preparation plants to serve a number of manufacturers' works; in both cases the ground coal can then be delivered to the cement works in special vehicles. A whole range of types of coal can be used, including very cheap coal with a high ash content obtained from spoil tips .

Lime-kilns

30. In this branch too, as in cement manufacture - with which it is often classified under one heading - heating costs play a decisive role in production costs. Coal or coke was traditionally used on a large scale. Many kilns were converted to oil or natural gas to obtain higher-grade products.

Bricks, roof tiles and fireclay

31. In these sectors energy is mainly used for heat treatment in kilns.

The purity of the combustion gases does not matter so much; but better controllability of temperatures means that natural gas has a technical advantage over other fuels.

There are no insurmountable obstacles to the use of coal in many parts of this industry as long as the coal price is attractive enough to outweigh the minor technical disadvantages.

Paper and board

32. Both products are manufactured in practically the same way; wood pulp is used as a raw material.

Wood pulp is obtained either by shredding and pounding the wood - an operation which consumes a good deal of motive energy - or by means of chemical liquifaction -, which requires heat for evaporating surplus liquid. In both cases large quantities of process heat are required for drying the final product.

The need for both process heat and motive power for operating machines - in the case of the mechanical method of treatment - makes it attractive for a company to generate its own electricity as part of a combined power and heat cycle.

B. Environmental problems

33. The increased use of coal leads to the following environmental nuisances:

- noise and dust during carriage, storage and handling
- discharges into the atmosphere during combustion
- ash disposal.

It is even more urgent to find a solution to these problems in those areas with a high population density and a large concentration of industries which also pollute the environment.

34. While some of the environmental problems in every industrial society are general, other aspects are specific to coal. The failure to deal with these disadvantages in the past has led to coal being viewed unfavourably. Almost all these disadvantages can be eliminated by means of appropriate organization and adequate funds. It is a question of cost; the additional expenditure must be offset by the price differential between oil and coal. The tougher the environmental protection regulations are in a given place, the greater must be coal's price advantage to balance the extra expenditure required to satisfy these regulations.

Satisfaction of strict regulations is not necessarily the major environmental problem of those firms wishing to convert from oil to coal. The uncertainty surrounding the interpretation of the legal provisions in this field and expensive, time-consuming and complicated authorization procedures may have a greater deterrent effect than strict environmental regulations.

35. Traditional forms of coal-handling such as storage on open dumps and only partially mechanized and unprotected loading and unloading are labour-intensive and also unattractive activities. Coal dust gets into the air and causes pollution in other places.

In most cases therefore, renewed use of coal instead of oil requires the installation of modern automatic handling plants. This includes enclosed coal stores, e.g. underground, perhaps beneath parking areas, and the enclosed carriage of coal in bunkers either under pressure or on a conveyor belt or by means of a combination of these two methods. The coal falls from the bunker through chutes or is blown into furnaces or boilers by a current of air.

These plants require a little more labour and servicing than in the case of oil. Furthermore, no coal dust escapes and the environment is not therefore polluted.

When handling coal dust, considerations of environmental protection and the explosion risk dictate that the dust must be carried in enclosed vehicles of the tanker type and stored in special bunkers under a protective atmosphere of inert gas. Centralized crushing by the producer or at large-scale users' works could also ease environmental problems and facilitate the supply of small consumers.

36. All combustion also produces gases which are discharged into the atmosphere; when coal, in particular, is burned, more CO_2 is released than in the combustion of oil or natural gas. It is a moot point whether the release of additional carbon dioxide as a result of increased coal-burning will cause damage in the long term; there are, however, no signs of such damage occurring in the short or medium term. It is to be hoped that further research in this field will provide more information.

The discharge of other gases such as compounds of sulphur and nitrogen is not specific to coal, but nitric oxide emissions resulting from the nitrogen content of the fuel are higher than with oil or gas-firing. As stated in the chapter on combustion technologies, some methods even reduce the production or release of such gases. Where necessary, the release of sulphur compounds can be practically avoided by desulphurizing the gas or coal, even though the storage of the residual waste may pose problems.

37. The production of ash is a factor specific to coal; coal-fired plants are therefore connected with appropriate ash collection plants.

Ridding coal-users - especially small-scale users - of the ash problem is one important aspect of the question of replacing oil by coal.

Filters have to be installed to prevent ash components from escaping through the chimney into the environment.

38. Ash in any form may contain harmful substances. If toxins are present in potentially dangerous quantities, special disposals procedures must be used.

39. The solution of the ash problem depends on the possibilities of utilization whereby it is important to distinguish between two types of ash:

- clinker ash
- powder ash.

40. Grate-firing mainly produces clinker. This clinker can be utilized and is widely used as construction materials, road-building materials or, for instance, for land reclamation in the United Kingdom. If the clinker cannot be used, it can only be dumped on to tips (which must subsequently be planted) or used to fill hollows (in this case it is subject to compulsory recultivation).

As a result, the occurrence of even large amounts of clinker should not constitute an insoluble problem if coal consumption by the "other industry" sector happens to increase sharply in future. This is also a problem of organization. Some coal consumers will be able to tackle the problem of large quantities on their own. A large number of smaller coal-users might raise the need for organizations to examine the best possible commercial use, whereby the coal suppliers could assume the responsibility of collecting the ash and utilizing it or dumping it on a centralized basis.

41. Powdered ash is obtained from dust-firing and from filters. It can be upgraded by adding binding agents or may be of value for the cement industry. Carriage and dumping require special dust-prevention measures.

IV. INFRASTRUCTURE PROBLEMS

A. The coal trade

42. The consumer obtains coal either directly from the producer or importer or via wholesalers and retailers.

There are no trading problems involved in the direct supply from producers or importers, even if deliveries were to increase sharply in future. There should be no problems in future in connection with the wholesale trade, provided that it sells directly to the purchaser without intermediate storage. However, problems could arise in the case of wholesalers with their own stores and of retailers. The following argument applies to these two types of trader. Defining their problems is made more difficult by the fact that no recent statistics are available concerning the commercial channels serving the "other industry" sector and the amounts supplied. The traders themselves do not only have industry as their clients; they also have small-scale users, households, public administrations, etc.; i.e. their problems do not arise solely in the field of industrial supply. A general upturn in the coal trade would be of advantage to all consumers.

43. In previous decades, coal traders have dealt almost exclusively in solid fuels. As coal sales have dropped since 1958/1959 they have either gone out of business[1] or diversified into fuel oil, building materials, fertilizers, etc. Coal often accounts for only 15-20% of total sales.

Any return to coal-trading activities which may prove necessary in future should not mean that activities built up in the past twenty years should be abandoned or scaled down; instead, the trader's overall activities should be extended.

It is doubtful whether existing firms will always be able to expand or whether new firms will be set up. The establishment of new firms appears possible as the coal trade is an attractive commercial activity. The use of modern equipment, the avoidance of laborious and dirty work and advantageous credit facilities on the part of producers, importers and wholesalers wishing to increase sales could provide added incentives.

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[1] Two-thirds of the firms existing in the Federal Republic in 1958 had closed down by 1979.

44. The traditional activities of the coal trade such as advice to customers, "bulking" of orders, purchasing, carriage, storage, treatment of the coal to improve quality, i.e. weighing, mixing, breaking, sifting and, possibly, putting into sacks or other packaging, and, finally, distribution to consumers and possibly, ash recovery (see point 40 above) can, with one exception, be accounted for more or less by means of initiatives and investment; the exception is the space needed for the storage and handling of coal. When the tonnage sold is increased, there must be quicker loading and unloading (change of operating arrangement, increased storage at producers' and importers' premises) or new areas or, possibly, intermediate stores must be set up alongside railway lines or at seaports and inland ports. Many railway companies in the Community still have unused land and shunting yards which could sometimes be converted into modern coal distribution depots, including facilities for the automatic unloading of railway wagons, automatic storage, sorting and loading of lorries.

The considerable increase in coal consumption expected in the Community in future may lead to new problems associated with the mixing of different sizes and qualities of coal to supply the qualities required by the consumer. This is particularly true of imported coal; importers may have to mix sizes and qualities of coal from various origins to obtain the right mix for use.

B. Coal transport

45. One basic condition for using more coal instead of oil is a suitable supply (transport) system. This system is in existence for coal supply as a whole or for the economy as a whole; it will not be possible to give priority to coal supplies for the "other industry" sector. There is therefore no point in considering the amounts carried for the "other industry" sector in isolation, especially as no serious transport problems will arise up to the year 2000, even if the volume were to multiply, as the amounts used by the "other industry" sector are relatively small. Future problems - which take time to solve, although we have up to the year 2000 - could arise because of the interdependence

of transport systems and of the increased coal demand from power stations. The quantities involved could increase by 150-200 million t in the Community by the year 2000.[1].

46. Decisive factors in connection with transport and any difficulties which may arise are the number of users, their geographical position in relation to the internal and imported sources of supply and the extent and rate of the quantitative increases in consumption. These criteria are complicated as they vary from country to country and from region to region; in addition, the future trend cannot yet be assessed with regard to the sites to which the major coal-users will move. In addition to the economic factors, technical and environmental aspects aslo play a role here.

One important aspect for the Community is that supply will be restructured if total coal consumption were to double by the year 2000.[1] Even with a certain increase in internal production total coal imports would have to rise by more than 200 million t. The increase in production mainly affects railways and inland navigation, and imports affect shipping and the seaports and, subsequently, also railways and the inland waterway system, unless new large power stations are built mainly in coastal areas.

47. Those Members of the Community which produce coal should be in a better position to solve the transport problems than those countries which merely consume coal; but the coal-producers too have scaled down coal transport capacity in response to the lower volume or converted it to other merchandise or to passenger traffic. Even if the capacity of transport equipment is expanded relatively quickly - and also substantially - by means of investment, there would be the question of the extent to which this would be possible in respect of the transport infrastructure (road, rail, river, canal).

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[1] See doc. COM(80) 117 final

48. Some problems could arise if the transport volume were to saturate, e.g., the main traffic arteries, while transport capacity is still available on other routes for the supply of small and geographically scattered industrial undertakings.

In addition, there would be the problem of investment if new transport routes had to be created. In view of the time required for building new routes, long-term planning would be needed to ensure that the routes are available when transport demand arises.

49. For these reasons, this study cannot provide detailed information about countries or regions. The following information deals only with general aspects of the various modes of transport.

50. Road transport

As in the case of other bulk goods, the transport of coal on public highways can play no more than a limited role because of economic considerations; the varying regulations in the Member States restrict the useful load of trucks to between 32½ and 50 tonnes. Road transport also raises environmental and traffic problems.

In most cases, the limits for the economic transportation of coal by road in the Community are a maximum distance of around 100 km and quantities of up to 10 000 tonnes a year, although over shorter distances road transport can prove to be the appropriate form of transport for far larger amounts. Road transport mainly comes into consideration for the regional distribution of coal from pits, ports or intermediate stores.

51. Rail transport

According to the statistics available for 1977, almost half (some 100 million t) of the solid fuels consumed in the six original Member States (211 million tce) were carried by rail. About 90% of the volume of solid fuel transported was accounted for by purely domestic transaction, while 10% was accounted for by international traffic forming part of intra-Community trade (mainly German coal and coke).

In 1977 the railways in all nine Member States registered 177 400 million net tonne kilometres in freight traffic. Assuming that about half [1] the increase in coal consumption - i.e. 125 million of the 250 million t - will have to be carried by rail in future (up to the year 2000), this figure would rise by 25 000 million net tonne kilometres.[2] This means an increase of around 15% on the total amount carried in 1977 (see above).

This appears feasible when looking at rail transport as a whole, but it does not get to the heart of the problem of the rail transport of coal, as by the year 2000 the quantity carried would be more than double that carried in 1977. New railway lines would have to be built in some regions of the Community where new large-scale users of coal could establish themselves.

The wagon fleet and wagon capacity must also be increased and modernized. Locomotives are needed. By extending installations, the net load per train could be increased from the current maximum of 1650 t to 2 800 t.

52. Inland waterways

Inland waterways in the Community exist mainly in the Netherlands, Belgium, France and the Federal Republic.

According to the statistics available for 1977, around 15% (32 million t) of the solid fuels used in EUR-6 were carried by inland waterway; about 50% of this traffic was accounted for by cross-frontier traffic between Community countries.

Inland waterways in the nine Member States registered some 100 000 million net tonne kilometres in freight traffic in 1977. Assuming that about 20%[3] of the increase in coal consumption - i.e. some 50 million t [4] of the 250 million t - will have to be carried by inland waterways in future (up to the year 2000), the figure would rise by some 15 000 million net tonne kilometres (15%)[5]. This appears feasible where the general capacity utilization of the inland waterways is concerned, but the special loading and unloading facilities for coal in the inland ports will have to be more than doubled. The vessels too will have to be increased in number, equipped specifically for coal and modernized.

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[1] This assumption does not take account of the future competitive situation between railways and inland waterways.

[2] With an average distance travelled of 200 km.

[3] The percentage was increased from 15% (1977) to 20% as more imported coal will have to be transported from the ports of import in future. This assumption does not take account of the future competitive situation between railways and inland waterways.

[4] The transport volume of 1977 (32 million t) would rise by 150%.

[5] With an average distance travelled of 300 km.

53. Unloading facilities at seaports

The main acitivity here in future will be to increase capacity and expand the ports to accomodate large coal freighters with a capacity of up to 165 000 t. Problems of space for storing and mixing the coal and the administrative provisions which exist in some of the Community countries could obstruct the increase in capacity.

Some 1 100 million t of merchandise were unloaded at seaports in the nine Member States in 1977. If the Community's current coal imports from non-member countries (about 74 million t in 1980) were to increase by around 200 million t by the year 2000, the total unloading capacity of Community seaports would have to be increased by 20%; where coal is concerned, the unloading facilities must be quadrupled.

54. Maritime transport

As shipping is not exclusively a Community field but an international market, it will not be discussed here.

55. Coastal shipping and pipelines

The carriage of coal by coastal shipping should have some chance of expanding in future were the extension of ports for large freighters not to prove useful and economic in all regions, with the result that the coal had to be transhipped to coastal ships in deep-sea ports.

The carriage of coal by pipeline - mixed with either water or oil - will probably come to account for only a small proportion of total transport volume in the Community. Experts believe that a coal pipeline does not offer economic advantages over other transport systems unless coal is transported in large quantities over long distances (more than 50 km) and no major infrastructure costs are incurred. In general the Community has a well-developed transport network (rail, road, waterway).

C. Conclusions

56. The above information about transport problems shows that the issue is extremely complicated, as data are incomplete even for the present situation and it is impossible to predict where coal-users will establish themselves in future in relation to the Community's coal-producers or the ports importing coal. Any breakdown into individual means of transport of the total additional transport volume resulting from the increase in coal consumption can be no more than arbitrary; all carriers and consumers will have to cooperate on this point in the future.

V. THE FUTURE TREND IN DEMAND

57. It is not the main aim of this study to consider the future quantitative coal consumption potential of the "other industry" sector in the Community. The following information should serve merely as an indication, since many organizations, authorities, etc.,[1] - and also the Commission [2] - have dealt with future trends in world and Community coal consumption in special publications. Some figures dealing with the consumption of the "other industry" sector in the Community in the year 2000 and taken from the publications mentioned are contained in the two tables of Annex III.

58. From the methodical viewpoint, there can be no adequate mathematical scenarios for drawing up quantitative estimates of the future coal requirements of the "other industry" sector. The methods used for the estimates are general, the figures are "guesstimates"and often the coal requirements of "other industry" are calculated as a residual figure without using any special method. It would certainly not be rational to take the ground lost by coal in the "other industry" sector over the past twenty years and assume that the former level will be attained over the next twenty years. Not only has the market for coal changed in the past, but it will continue to change in future in line with conditions of supply on the world energy market. The industrial production apparatus, the technical production methods and the range of products have also changed and will continue to change. When substituting other fuels for oil, industry will often be faced by the decision of whether to convert to coal or, if available, gas. Natural gas will probably remain a strong long-term rival of coal because of its obvious advantages. Coal gasification, which will gain in importance in the nineties, is a possibility to consider in this connection. However, coal requirements in this sector cannot be estimated with sufficient reliability.

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[1] IEA/OECD, UN Economic Commission, MIT (WOCOL), CEPCEO, et al.

[2] See doc. COM(80) 117 final

59. This and the technical and economic problems outlined in Chapters III and IV of this study automatically lead to considerable differences in the forecasts. Nevertheless, it can be seen that the potential for increasing coal consumption in industry is generally considered high.

The figures contained in the tables of Annex III lead to two important findings. Table 1 shows that the later forecasts predict higher consumption figures than do the previously-published studies. This is because, as yet, all the possibilities have not been examined and because now it is expected that conversion to coal-firing will be more rapid than previously assumed. The second finding, contained in Table 2, is that the highest absolute increases in coal consumption in the "other industry" sector are expected in those Member States in which coal still played a considerable role in the mid-seventies.

60. It is by no means certain that the conversions from oil to coal expected in this sector in the long term will take place as the continuous development of a process already initiated. In the final analysis, substitution takes place as a result of individual business decisions which are taken only in the presence of important basic conditions such as adequate heat-price differential, a coal combustion technology satisfying the demands of the particular production process in question and minimal environmental pollution. Conversion to coal is already well advanced in the cement industry as all these basic conditions have been met; this is not, however, the case in most other branches of industry.

Rapid continuation of the substitution process often fails as industrial energy-consumers hesitate to convert to even technically advanced coal-fired plant because of their general lack of experience in using solid fuels. Another inhibiting factor is the age structure of the existing oil and gas-fired boilers - a large proportion of this plant will not reach its normal life of 20-30 years until the nineties.

The delaying factors indicated will probably mean that the substitution process will, for the time being, continue only in a number of particularly energy-intensive industrial sectors and then normally with little dynamism of its own. As long as entrepreneurs fail to consider the probability of considerable changes in the heat-price ratio when planning investment, or underestimate the hazards of energy supply, the individual decisions to convert may not reach the proportions desired by energy policy until the nineties. In these circumstances, the replacement of oil by coal in "other industry" will not take place more quickly and on a broader base until special measures are taken to change the external conditions facing potential investors.

CHAPTER VI

General information on investment costs

61. A number of general indications about the investment costs involved in replacing oil are to be given here in the final chapter as information additional to the previously mentioned technical and quantitative problems. The following comments apply only to industry - the infrastructure sectors dealt with previously are not included here as there is virtually no information available on their investment requirements.

This reference to industry's investment costs should give some impression of the amount of capital required for the substitution process. The availability of capital, irrespective of whether it is borrowed or not, is not a decisive point, but it is an important factor in a firm's decision to replace fuel oil with coal.

62. When determining the amount of capital investment needed, firms will also of course calculate the expected profitability of the investment; this depends on a large number of factors and cannot therefore be discussed here. However, the Commission has information from industry, showing that the problem of the pay-back period is an important criterion when deciding whether or not to invest. Although this problem too can be solved only on a case-by-case basis, some general comments are made below in point 67.

63. The measures to be taken when replacing oil vary depending on country, sector of industry and firm; the prices of the capital goods also vary. However, the following general statements may be made:

- Most of the total investment is accounted for by the boiler equipment.
- Coal-fired boilers require considerably higher investment expenditure than oil or gas-fired boilers.

The reason for the latter fact is that coal-fired boilers must be of greater dimensions than oil-fired boilers if they are to achieve the same performance and that additional devices have to be installed for such things as grinding equipment, flue gas desulphurization and the ash disposal. In extreme cases, the resulting investment costs for coal-fired boilers may be 50%-250% higher than the corresponding investment costs for oil-fired boilers; the price differential between oil-fired and coal-fired boilers is estimated roughly at 1 : 2.

64. Apart from the relative investment costs for coal-fired boilers, the absolute investment expenditure for substitution is also important; this varies according to whether it is a case of:

- reconversion;
- conversion, or:
- a completely new installation

Reconversion is for oil-fired boilers which used to be operated with coal and are now to be reconverted to burn coal.

Conversion is the adjustment of any installations which were designed as oil-fired boilers and which are to be converted to coal.

In addition to these criteria, investment costs are not proportional to the size of the boiler - the investment costs per unit of boiler performance drops as boiler size increases. The fact that the conversion of smaller boilers requires relatively higher investment costs than for larger boilers runs counter to the future substitution trend.

65. When the above criteria are applied to a large-scale industrial power plant

- with a capacity of 750 mW;
- operated for 6 000 hours a year;
- and consuming one million tonnes of fuel oil a year (or 1.5 m tonnes of coal),

the following investment costs may be expected (as a general indication) :

	Specific investment expenditure	Total investment expenditure	Investment expenditure per tonne of fuel oil replaced
	ECU/kW	m ECU	ECU
Reconversion	100	75	75
Conversion	250	190	190
New construction	500	375	375

The investment costs involved in replacing one tonne of fuel oil thus depend to a very large extent on the form this replacemnt takes.

66. The amount of capital per tonne of fuel oil needed for converting a large plant is relatively low compared with small plants. Although dealing with individual cases and thus of only limited significance for gauging the overall situation, certain information suggests that investment expenditure per tonne of fuel oil replaced can be expected to total

150-300 ECU for reconversion
300-500 ECU for conversion

in plants with an annual coal throughput of some 50 000 - 100 000 t (35 000 - 70 000 t of fuel oil).

The capital required by small industrial plants for each million tonne of fuel oil to be replaced by coal therefore amounts to several hundred million ECU.

67. During the Commission's investigations, industry pointed out that the replacement of fuel oil by coal is subject to a large number of imponderables which make firms adopt a wait-and-see attitude before reaching a decision about replacement. The imponderables consist not only of general risks which must normally be taken into account with any investment, but arise specifically in the case of replacement, since the future trend in the price relation between fuel oil and coal is fraught with problems of energy policy, oil price policy and exchange rates, etc., which can hardly be predicted-and thus the

pay-back period representing the ratio between capital investment and cost saving - are determined by the trend in this price differential. In view of these risks, firms seek to make the pay-back period as short as possible, i.e. some two to three years.

It should also be considered that the pay-back period for the invested capital depends not only on the relative price differential between fuel oil and coal but also from the utilization of boiler capacity. If the boiler is operated for 6 000 hours a year and the fuel throughput is correspondingly high, the total cost-saving is also high and, compared with the capital investment, results in a relatively shorter pay-back period than in cases where the same boiler is used for only 2 000 hours a year, which often happens in smaller plants. The smaller industrial plants are in a worse position than large plants in this respect.

As far as experience is available and calculations can be made, the pay-back period in smaller plants amounts to some 5-6 years or longer; decisions on replacement are oftern delayed for that reason. If coal's price advantage over fuel oil should increase in future or if the capital investment could be reduced or made cheaper by means of aid measures, the wait-and-see attitude which may at present be observed could be overcome.

ANNEX I

List of the individual criteria influencing the decision to replace oil by coal in individual industrial undertakings

1. When coming to a decision about converting firing plant from oil to coal, undertakings in the "other industry" sector face two types of problem :

(i) general data extraneous to the undertaking
(ii) technical and financial conditions within the undertaking itself.

2. General data extraneous to the undertaking

The following aspects can be mentioned by way of example :

- the general state of development of coal-firing methods (rational, convenient, clean, environmentally acceptable, etc.)
- problems associated with obtaining coal (network of dealers and distributors, availability of imports of Community coal, transport)
- ash disposal or ash utilization
- assessment of the supply risks for oil and coal
- future trends in the differential of the price per thermal unit between oil, imported coal, Community coal, lignite, gas, electricity, etc.
- other means for replacing oil not by coal but by other energy sources (lignite, gas, electricity, etc.)
- local environmental protection regulations and the accompanying official authorization procedures
- development of environmental legislation
- how competitors are dealing with the question of plant conversion

- general economic prospects

- prospects on the market in the specific products manufactured by the undertaking.

Technical and financial conditions within the undertaking itself

(a) Technical conditions

  - height and dimensions of boilerhouses, boilers, firing plant, chimneys, etc.

  - storage space at the factory, bunkers - underground, above ground

  - transport from store or bunker to firing plant
  - access and exit routes on factory premises

  - technical requirements of the production process (purity, uniformity, controllability, flame temperature)

(b) Financial conditions

1. Financial advantage

There is only one advantage : the differential in the price per thermal unit. From the probable differential in the price per thermal unit which works to coal's advantage must be subtracted the effect due to the - possibly - lower degree of efficiency. The efficiency rating covers not only the boiler but also the individual requirements of operational preparedness for production purposes (is the flame needed continually or only intermittently ?).

2. Financial disadvantages

  - Raising the amount of investment needed for conversion (including land for stores, etc.). This is either a problem of acquiring capital, if outside funds are required for finance (particularly important in the case of small and medium-sized firms which do not have access to the stock market), or a problem of liquidity (in the case of self-financing).

- interest payments and repayment conditions for investments conducted by means of outside finance
- depreciation, consisting of two categories :
  - -- extraordinary depreciation on the old dismantled firing plant
  - -- normal depreciation on the newly-installed plant
- labour costs, expenditure on materials and repairs involved in the operation of converted plant
- dangers or financial consequences of interruptions in production due to conversion (may be mitigated by temporary use of auxiliary units or by production for stocks).

4. Conclusion

The aspects mentioned in points 2 and 3 must be weighed up by the investor and then assessed.

It is by no means certain that this overall assessment will be based exclusively on quantifiable financial considerations in individual cases. The financial aspect will certainly be a supporting factor in the decision-making. However, this factor must be weighted if it is considered in connection with the risks associated with the supply of oil and the security of supply in the case of coal.

ANNEX II.

(Table 1)

Total Final Energy Consumption in "Other Industry"

(Self producers of electricity excluded)

(in 1 000 t.o.e)

		Hard coal,coke fuel oil (light and heavy) natural gas	Other fuels	Sub-total	Electricity	TOTAL
Belgique	1960	3 913	494	4 407	1 763	6 170
	1970	6 652	468	7 120	3 129	10 249
	1978	6 235	344	6 579	4 098	10 677
Danmark	1960	992	105	1 097	385	1 482
	1970	3 291	232	3 523	769	4 292
	1978	2 402	255	2 657	1 113	3 770
Deutschland (BR)	1960	19 570	6 303	25 873	15 266	41 139
	1970	32 613	3 830	36 443	22 482	58 925
	1978	31 606	2 615	34 221	28 181	62 402
France	1960	14 817	1 200	16 017	8 606	24 623
	1970	27 012	1 027	28 039	13 793	41 832
	1978	24 444	1 572	26 016	16 839	42 855
Ireland	1960	682	-	682	175	857
	1970	1 248	63	1 311	427	1 738
	1978	1 317	123	1 440	730	2 170
Italia	1960	10 136	320	10 456	6 413	16 869
	1970	22 940	2 289	25 229	12 441	37 670
	1978	21 538	642	22 180	15 110	37 290
Luxembourg	1960	59	3	62	52	114
	1970	138	26	164	107	271
	1978	151	26	177	266	443
Nederland	1960	3 658	585	4 243	1 713	5 956
	1970	7 269	460	7 729	3 736	11 465
	1978	8 252	297	8 549	5 710	14 259
United Kingdom	1960	28 699	2 835	31 534	10 675	42 209
	1970	31 199	2 731	33 930	18 828	52 758
	1978	27 194	1 659	28 853	19 471	48 324
Community	1960	82 526	11 845	94 371	45 048	139 419
	1970	132 362	11 126	143 488	75 712	219 200
	1978	123 139	7 533	130 672	91 518	222 190

ANNEX II
(Table 2)
COMMUNITY

Final Consumption of Selected Energies in "Other Industry"

(Self producers of electricity excluded)

(in 10^3 t.o.e.)

Industry		Coal	Coke	Light fuel oil	Heavy fuel oil	Natural gas	TOTAL
Chemical industry	1960	7 271	2 712	425	4 217	1 079	15 704
	1970	4 066	1 317	2 289	13 315	6 910	27 897
	1976	1 228	759	2 156	14 620	10 346	29 109
	1978	1 125	662	1 742	14 964	10 302	28 795
	1978*	1 578	23	107	3 403	2 075	7 186
Glass, pottery, building materials	1960	9 766	2 104	645	6 135	707	19 357
	1970	3 887	1 386	3 174	18 371	5 375	32 193
	1976	2 717	497	1 871	13 169	9 730	28 004
	1978	3 470	364	1 843	12 342	9 877	27 896
	1978*	2	-	-	10	11	23
Food, drink and tobacco	1960	5 367	532	908	3 771	246	10 824
	1970	2 284	294	2 905	9 020	1 541	16 044
	1976	808	192	1 945	8 157	3 617	14 719
	1978	855	187	1 895	7 938	4 217	15 132
	1978*	94	4	3	311	169	586
Paper and printing	1960	3 918	134	99	2 034	241	6 426
	1970	2 057	83	529	5 823	922	9 414
	1976	366	5	442	4 980	2 045	7 839
	1978	531	4	424	4 800	2 682	8 441
	1978*	550	9	13	1 118	357	2 047
Engineering and other metals	1960	3 652	1 831	1 622	3 522	476	11 103
	1970	1 852	1 374	6 427	7 269	2 688	19 610
	1976	1 398	639	4 790	4 976	6 546	18 349
	1978	1 474	454	4 606	4 801	7 488	18 823
	1978*	127	6	11	272	149	565
Others	1960	10 302	1 380	2 274	4 512	644	19 112
	1970	2 932	1 057	8 926	12 466	1 823	27 204
	1976	1 331	667	7 050	10 163	5 942	25 153
	1978	1 196	514	7 265	9 422	5 655	24 052
	1978*	789	7	12	1 441	455	2 704
TOTAL	1960	40 276	8 693	5 973	24 191	3 393	82 526
	1970	17 078	5 511	24 250	66 264	19 259	132 362
	1976	7 848	2 759	18 254	56 035	38 226	123 172
	1978	8 651	2 185	17 770	54 317	40 216	123 139
	1978*	3 140	49	151	6 555	3 216	13 111

* Self producers of electricity

N.B. Figures may differ from the total of those for Member States listed in tables 3 to 11 due to conversion from t.c.e. to t.o.e.

ANNEX II
(Table 3)
BELGIQUE/BELGIE

Final Consumption of Selected Energies in "Other Industry"

(Self producers of electricity excluded)

(in 10^3 t.o.e)

Industry		Coal	Coke	Light fuel oil	Heavy fuel oil	Natural gas	TOTAL
Chemical industry	1960	161	110	40	330	-	641
	1970	2	90	112	909	293	1 406
	1976	8	50	66	643	838	1 605
	1978	20	29	70	380	738	1 237
	1978*	-	-	-	27	106	133
Glass, pottery, building materials	1960	307	80	82	306	-	775
	1970	320	97	318	1 199	287	2 221
	1976	422	32	187	433	997	2 071
	1978	935	22	196	453	875	2 481
	1978*	-	-	-	-	-	-
Food, drink, and tobacco	1960	172	22	73	222	-	489
	1970	32	13	159	341	6	551
	1976	8	6	109	230	117	520
	1978	3	7	114	294	67	485
	1978*	-	-	-	22	3	25
Paper and printing	1960	125	-	15	98	-	238
	1970	14	34	52	198	2	300
	1976	-	-	18	122	57	197
	1978	-	-	19	129	64	212
	1978*	-	-	-	20	11	31
Engineering and other metals	1960	68	22	85	145	-	320
	1970	16	164	186	298	69	733
	1976	14	44	120	187	151	516
	1978	6	22	126	197	137	488
	1978*	-	-	-	8	-	8
Others	1960	509	176	222	543	-	1 450
	1970	57	66	531	630	157	1 441
	1976	9	52	309	451	231	1 051
	1978	7	41	322	752	210	1 332
	1978*	-	-	-	32	82	114
TOTAL	1960	1 342	410	517	1 644	-	3 913
	1970	441	464	1 359	3 575	814	6 652
	1976	461	184	808	2 116	2 391	5 960
	1978	971	121	847	2 205	2 091	6 235
	1978*	-	-	-	109	202	311

* Self producers of electricity

ANNEX II
(Table 4)
DANMARK

Final Consumption of Selected Energies in "Other Industry"

(Self producers of electricty excluded)

(in 10^3 t.o.e.)

Industry		Coal	Coke	Light fuel oil	Heavy fuel oil	Natural gas	TOTAL
Chemical industry	1960	-	1	14	56	-	71
	1970	-	1	70	145	-	216
	1976	1	-	43	111	-	155
	1978	3	-	49	111	-	163
	1978*	-	-	-	-	-	-
Glass, pottery, building materials	1960	170	14	18	194	-	396
	1970	149	19	69	759	-	996
	1976	280	14	55	385	-	734
	1978	338	12	62	381	-	843
	1978*	-	-	-	-	-	-
Food, drink and tobacco	1960	5	1	18	212	-	236
	1970	7	3	68	822	-	900
	1976	21	4	54	417	-	496
	1978	49	3	61	413	-	526
	1978*	-	-	-	-	-	-
Paper and printing	1960	-	-	4	47	-	51
	1970	-	-	12	183	-	195
	1976	42	-	9	93	-	144
	1978	77	-	11	92	-	180
	1978*	-	-	-	-	-	-
Engineering and other metals	1960	-	1	21	45	-	67
	1970	-	1	82	176	-	259
	1976	-	2	66	89	-	157
	1978	-	1	73	87	-	161
	1978*	-	-	-	-	-	-
Others	1960	-	1	124	46	-	171
	1970	4	1	463	257	-	725
	1976	1	-	385	92	-	478
	1978	3	-	431	92	-	529
	1978*	-	-	-	70	-	70
TOTAL	1960	175	18	199	600	-	992
	1970	160	25	764	2 342	-	3 291
	1976	345	20	612	1 187	-	2 164
	1978	520	16	690	1 176	-	2 402
	1978*	-	-	-	70	-	70

* Self producers of electricity

ANNEX II
(Table 5)
DEUTSCHLAND (B.R.)

Final Consumption of Selected Energies in "Other Industry"

(Self producers of electricity excluded)

Industry		Coal	Coke	Light fuel oil	Heavy fuel oil	Natural gas	TOTAL
Chemical industry	1960	1 813	1 137	93	932	108	4 083
	1970	969	558	477	3 461	2 324	7 789
	1976	900	305	440	3 802	2 641	8 088
	1978	780	336	431	4 104	3 421	9 072
	1978*	1 166	-	1	594	694	2 455
Glass, pottery, building materials	1960	3 214	1 298	168	1 157	-	5 837
	1970	509	692	1 315	4 281	1 738	8 535
	1976	231	280	816	3 266	2 179	6 772
	1978	284	197	795	3 070	2 343	6 689
	1978*	2	-	-	10	8	20
Food, drink and tobacco	1960	1 303	182	144	616	-	2 245
	1970	535	69	792	1 737	218	3 351
	1976	214	47	861	1 935	524	3 581
	1978	210	50	821	1 917	633	3 631
	1978*	24	-	-	110	101	235
Paper and printing	1960	878	61	19	380	-	1 338
	1970	324	9	235	1 481	164	2 213
	1976	131	2	226	1 331	407	2 097
	1978	183	1	198	1 379	593	2 354
	1978*	92	-	-	545	162	799
Engineering and other metals	1960	787	587	402	649	-	2 425
	1970	413	245	2 100	1 322	1 133	5 213
	1976	213	112	1 979	1 040	1 347	4 691
	1978	198	108	1 771	1 024	1 670	4 771
	1978*	78	-	1	192	132	403
Others	1960	2 064	483	284	762	49	3 642
	1970	708	522	1 443	2 124	715	5 512
	1976	325	329	1 369	1 790	2 599	6 412
	1978	269	231	1 399	1 305	1 885	5 089
	1978*	38	-	-	107	136	281
TOTAL	1960	10 059	3 748	1 110	4 496	157	19 570
	1970	3 458	2 095	6 362	14 406	6 292	32 613
	1976	2 014	1 075	5 691	13 164	9 697	31 641
	1978	1 924	923	5 415	12 799	10 545	31 606
	1978*	1 400	-	2	1 558	1 233	4 193

* Self producers of electricity

ANNEX II
(Table 6)
FRANCE

Final Consumption of Selected Energies in "Other Industry"

(Self producers of electricity excluded)

(in 10^3 t.o.e)

Industry		Coal	Coke	Light fuel oil	Heavy fuel oil	Natural gas	TOTAL
Chemical industry	1960	851	257	149	413	339	2 009
	1970	559	317	855	1 666	741	4 138
	1976	292	185	339	2 916	1 106	4 888
	1978	257	177	382	2 985	1 335	5 136
	1978*	24	-	17	273	259	573
Glass,pottery, building materials	1960	1 635	239	272	830	141	3 116
	1970	480	271	1 050	3 305	697	5 803
	1976	120	80	413	3 617	1 457	5 687
	1978	91	48	424	3 640	1 496	5 699
	1978*	-	-	-	-	-	-
Food, drink and tobacco	1960	1 199	103	561	411	7	2 281
	1970	305	67	1 540	1 853	70	3 835
	1976	56	50	403	2 303	225	3 042
	1978	80	66	397	2 371	304	3 218
	1978*	3	-	-	80	-	83
Paper and printing	1960	740	1	33	353	85	1 212
	1970	274	-	140	861	191	1 466
	1976	38	-	82	1 122	194	1 436
	1978	50	-	81	1 145	239	1 514
	1978*	7	-	-	246	10	263
Engineering and other metals	1960	470	362	753	317	24	1 926
	1970	209	313	3 010	817	260	4 609
	1976	87	66	1 337	777	886	3 153
	1978	100	50	1 325	707	1 236	3 418
	1978*	-	-	-	-	-	-
Others	1960	2 079	363	1 056	748	27	4 273
	1970	947	340	3 695	2 036	93	7 161
	1976	453	199	2 565	1 790	436	5 443
	1978	393	185	2 500	1 782	599	5 459
	1978*	14	-	2	101	22	139
TOTAL	1960	6 974	1 324	2 824	3 072	623	14 817
	1970	2 774	1 308	10 290	10 538	2 052	27 012
	1976	1 016	580	5 194	12 525	4 304	23 699
	1978	971	526	5 109	12 630	5 203	24 444
	1978*	48	-	19	700	291	1 058

* Self producers of electricity

ANNEX II
(Table 7)
IRELAND

Final Consumption of Selected Energies in "Other Industry"

(Self producers of electricity excluded)

(in 10^3 t.o.e.)

Industry		Coal	Coke	Light fuel oil	Heavy fuel oil	Natural gas	TOTAL
Chemical industry	1960	Breakdown by sectors not available; all figures included in "others"					
	1970						
	1976						
	1978						
	1978*						
Glass, pottery, building materials	1960						
	1970						
	1976						
	1978						
	1978*						
Food, drink, and tobacco	1960						
	1970						
	1976						
	1978						
	1978*						
Paper and printing	1960						
	1970						
	1976						
	1978						
	1978*						
Engineering and other metals	1960						
	1970						
	1976						
	1978						
	1978*						
Others	1960	462	7	49	164	-	682
	1970	104	7	156	981	-	1 248
	1976	21	7	177	953	-	1 158
	1978	25	7	367	918	-	1 317
	1978*	-	-	-	49	-	49
TOTAL	1960	462	7	49	164	-	682
	1970	104	7	156	981	-	1 248
	1976	21	7	177	953	-	1 158
	1978	25	7	367	918	-	1 317
	1978*	-	-	-	49	-	49

* Self producers of electricity

ANNEX II
(Table 8)
ITALIA

Final Consumption of Selected Energies in "Other Industry"

(Self producers of electricity excluded) (in 10^3 t.o.e.)

Industry		Coal	Coke	Light fuel oil	Heavy fuel oil	Natural gas	TOTAL
Chemical industry	1960	186	198	3	1 110	631	2 128
	1970	87	146	453	4 769	858	6 313
	1976	13	83	36	4 916	1 576	6 624
	1978	10	56	31	4 653	1 366	6 116
	1978*	-	-	4	1 493	187	1 684
Glass, pottery, building materials	1960	680	171	5	2 169	566	3 591
	1970	131	145	40	6 050	1 823	8 189
	1976	58	31	106	4 292	3 104	7 591
	1978	84	21	98	3 666	3 040	6 909
	1978*	-	-	-	-	-	-
Food, drink and tobacco	1960	11	24	3	850	238	1 126
	1970	4	34	12	1 450	355	1 855
	1976	1	45	70	1 250	701	2 067
	1978	1	35	59	1 019	724	1 838
	1978*	-	-	-	34	36	70
Paper and printing	1960	4	-	3	390	157	554
	1970	-	-	10	1 350	221	1 581
	1976	-	-	19	1 153	388	1 560
	1978	-	-	17	930	516	1 463
	1978*	-	-	-	286	126	412
Engineering and other metals	1960	31	64	25	630	452	1 202
	1970	9	218	68	1 600	483	2 378
	1976	6	279	235	1 046	1 308	2 874
	1978	7	140	215	913	1 078	2 353
	1978*	-	-	-	54	15	69
Others	1960	68	27	2	904	534	1 535
	1970	28	16	9	2 121	450	2 624
	1976	52	66	170	2 299	753	3 345
	1978	59	35	151	1 901	710	2 859
	1978*	15	-	-	1 009	110	1 134
TOTAL	1960	980	484	41	6 053	2 578	10 136
	1970	259	559	592	17 340	4 190	22 940
	1976	130	504	636	14 956	7 835	24 061
	1978	161	287	571	13 035	7 434	21 538
	1978*	15	-	4	2 876	474	3 369

*Self producers of electricity

ANNEX II
(Table 9)
LUXEMBOURG

Final Consumption of Selected Energies in "Other Industry"

(Self producers of electricity excluded)

(in 10³ t.o.e.)

Industry		Coal	Coke	Light fuel oil	Heavy fuel oil	Natural gas	TOTAL
Chemical industry	1960	-	-	3	8	-	11
	1970	-	-	34	29	-	63
	1976	-	-	-	46	-	46
	1978	-	-	14	38	-	52
	1978*	-	-	-	-	-	-
Glass, pottery building materials	1960	13	1	5	3	-	22
	1970	-	-	19	11	-	30
	1976	-	-	14	1	-	15
	1978	-	-	-	-	-	-
	1978*	-	-	-	-	-	-
Food, drink and tobacco	1960	Breakdown by sectors not available; all figures included in "others"					
	1970						
	1976						
	1978						
	1978*						
Paper and printing	1960						
	1970						
	1976						
	1978						
	1978*						
Engineering and other metals	1960						
	1970						
	1976						
	1978						
	1978*						
Others	1960	12	3	4	7	-	26
	1970	14	1	16	14	-	45
	1976	-	1	18	15	17	51
	1978	-	1	21	72	5	99
	1978*	-	-	-	-	-	-
TOTAL	1960	25	4	12	18	-	59
	1970	14	1	69	54	-	138
	1976	-	1	32	62	17	112
	1978	-	1	35	110	5	151
	1978*	-	-	-	-	-	-

*Self producers of electricity.

ANNEX II
(Table 10)
NEDERLAND

Final Consumption of Selected Energies in "Other Industry"

(Self producers of electricity excluded)

(in 10^3 t.o.e.)

Industry		Coal	Coke	Light fuel oil	Heavy fuel oil	Natural gas	TOTAL
Chemical industry	1960	136	123	33	530	-	822
	1970	22	95	14	584	2 188	2 903
	1976	15	100	1 021	309	2 685	4 130
	1978	36	12	591	690	2 175	3 504
	1978*	35	-	-	80	608	723
Glass, pottery, building materials	1960	216	13	19	216	-	464
	1970	92	1	7	340	650	1 090
	1976	7	15	12	106	794	934
	1978	3	16	22	124	829	994
	1978*	-	-	-	-	-	-
Food, drink and tobacco	1960	222	25	19	691	-	957
	1970	1	11	30	692	822	1 556
	1976	-	15	34	172	1 129	1 350
	1978	-	-	38	173	1 367	1 578
	1978*	7	-	-	30	27	64
Paper and printing	1960	226	-	4	207	-	437
	1970	-	-	12	329	333	674
	1976	-	-	2	30	284	316
	1978	-	-	4	39	532	575
	1978*	14	-	-	20	48	82
Engineering and other metals	1960	39	43	56	162	-	300
	1970	2	19	93	208	270	592
	1976	1	20	50	44	442	557
	1978	-	13	117	55	736	921
	1978*	-	-	-	-	-	-
Others	1960	240	6	42	355	35	678
	1970	29	1	74	407	303	814
	1976	7	-	26	71	283	387
	1978	1	-	44	92	543	680
	1978*	23	-	-	31	101	153
TOTAL	1960	1 079	210	173	2 161	35	3 658
	1970	146	127	230	2 560	4 566	7 629
	1976	30	150	1 145	732	5 617	7 674
	1978	40	41	816	1 173	6 182	8 252
	1978*	79	-	-	161	737	1 027

*Self producers of electricity

ANNEX II
(Table 11)
UNITED KINGDOM

Final Consumption of Selected Energies in "Other Industry"

(Self producers of electricity excluded)

(in 10^3 t.o.e.)

Industry		Coal	Coke	Light fuel oil	Heavy fuel oil	Natural gas	TOTAL
Chemical	1960	4 124	887	91	839	-	5 941
	1970	2 427	110	274	1 722	506	5 039
	1976	1	36	154	1 877	1 499	3 567
	1978	20	52	175	2 003	1 267	3 517
	1978*	353	23	85	936	220	1 617
Glass, pottery building materials	1960	3 531	290	77	1 259	-	5 157
	1970	2 207	161	357	2 426	179	5 330
	1976	1 599	45	268	1 090	1 199	4 201
	1978	1 685	47	252	1 008	1 289	4 281
	1978*	-	-	-	-	3	3
Food, drink and tobacco	1960	2 455	175	91	769	-	3 490
	1970	1 397	97	305	2 123	70	3 992
	1976	508	26	410	1 801	921	3 666
	1978	513	26	396	1 800	1 122	3 857
	1978*	61	3	8	36	2	110
Paper and printing	1960	1 945	71	21	559	-	2 596
	1970	1 445	40	60	1 422	11	2 987
	1976	156	3	86	1 129	715	2 039
	1978	220	3	94	1 086	739	2 142
	1978*	437	9	13	-	-	459
Engineering and other metal	1960	2 257	752	280	1 573	-	4 862
	1970	1 203	415	889	2 848	474	5 829
	1976	1 076	116	1 002	1 794	2 413	6 401
	1978	1 162	120	980	1 818	2 631	6 711
	1978*	48	6	10	18	2	84
Others	1960	4 868	316	489	980	-	6 653
	1970	1 043	102	2 537	4 234	106	8 022
	1976	462	12	2 039	2 702	1 570	6 785
	1978	440	14	2 025	2 503	1 704	6 696
	1978*	699	7	10	41	2	759
TOTAL	1960	19 180	2 491	1 049	5 979	-	23 699
	1970	9 722	925	4 431	14 775	1 346	31 199
	1976	3 802	238	3 959	10 393	8 317	26 709
	1978	4 040	262	3 922	10 218	8 752	27 194
	1978*	1 598	48	126	1 031	229	3 032

*Self producers of electricity

ANNEX III

Table 1

Summary of Various Forecasts of Coal Consumption in "Other Industry"

COMMUNITY

Mtoe

	Base Year	1990	2000
Steam Coal 2000 (1)	1976 10.8	21.3	37.2
CEPCEO (2)	1976 11.9	..	70.0-105.0
WOCOL (3)	1977 13.6	24.5-41.8	42.2-78.9
Doc. COM (80) 117 final (4)	1980 14.5	30.0	35.0
ECE Questionnaire (5)	1978 44.9	65.7-67.3	..

(1) IEA/OECD: Steam Coal Prospects to 2000, Paris 1978, figures of Annex 1, table 1-1 under "other coal". In addition to Other Industry, these figures include Households and Transport. The Commission has deducted the latter two from the base year and adjusted the forecasts by assuming a further drop in household consumption.

(2) Association of the Coal Producers of the European Community: Report on Prospects of Coal Consumption in the Other Industry Sector of the Community Energy Market, Brussels 1979.

(3) Coal - Bridge to the Future, Report of the World Coal Study (WOCOL), Cambridge Massachusetts, USA 1980, pages 226 ff. Figures for Belgium, Luxembourg and Ireland are Commission estimates.

(4) Commission of the European Communities: Outlook for the Long-Term Coal Supply and Demand Trend in the Community, Doc. COM (80) 117 final, 18.3.1980.

(5) Replies by Governments of Member States to ECE Questionnaire 1979. These figures are not strictly comparable as, subject to certain adjustments, they include consumption by the steel industry.

ANNEX III

Table 2

Forecasts of Coal Consumption in "Other Industry"

WOCOL 1980 Mtoe

	1977	1990	2000
Belgique (1)	0.7	2.0 - 2.4	2.7 - 3.4
Danmark	0.5	0.5 - 0.8	0.5 - 1.0
Deutschland	3.5	4.2 - 6.3	5.6 - 8.4
France	2.1	4.9 - 13.3	9.8 - 28.0
Ireland (1)	0.1	0.1 - 0.2	0.2 - 0.3
Italia	0.2	1.4	1.7 - 2.1
Luxembourg (1)	-	-	-
Nederland	0.2	1.6 - 2.0	2.1 - 2.8
United Kingdom	6.3	9.8 - 15.4	19.6- 32.9
Community	13.6	24.5 - 41.8	42.2 - 78.9

(1) Estimates by the Commission - not shown in WOCOL Study

European Communities

EUROPEAN PARLIAMENT

Working Documents

1981 - 1982

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16 November 1981 **DOCUMENT 1-662/81**

Report

drawn up on behalf of the Committee on Energy and Research

on aspects and requirements of coal supplies for the European Communities

Rapporteur: Mr G. RINSCHE

English Edition PE 72.283/fin

End of File Size:

On 20 May 1980 Ms CLWYD and others tabled a motion for a resolution pursuant to Rule 14 of the Rules of Procedure on the imminent threat of closure of British coal mines (Doc. 1-176/80).

The European Parliament rejected the request for urgent procedure and referred the motion for a resolution to the Committee on Energy and Research as the committee responsible, and to the Committee on Budgets and the Committee on Social Affairs and Employment for their opinions.

On 3 June 1980 the Committee on Energy and Research appointed Mr RINSCHE rapporteur and held an initial exchange of views.

The committee considered the draft report at its meeting of 20 May, 25 June and 20 October 1981 and at the latter meeting adopted it unanimously with one abstention.

Present: Mrs Walz, chairman; Mr Gallagher and Mr Normanton, vice-chairmen; Mr Rinsche, rapporteur; Mrs von Alemann (deputizing for Mr Galland), Mr Caborn (deputizing for Mr Percheron), Mr Croux, Mrs Ewing (deputizing for Mr Meo), Mr Fuchs, Mr Griffiths (deputizing for Mr Rogalla), Mr Lalor (deputizing for Mr Cousté), Mr Linkohr, Mr Moreland, Mr Müller-Hermann, Mr Pintat, Mr Rogers (deputizing for Mr Adam), Mr Sassano, Mr Schmid, Mr Seligman and Mr Veronesi.

The opinions of the Committee on Budgets and the Committee on Social Affairs and Employment are attached.

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A

The Committee on Energy and Research hereby submits to the European Parliament the following motion for a resolution, together with explanatory statement:

MOTION FOR A RESOLUTION

on aspects and requirements of coal supplies for the European Communities.

The European Parliament,

- having regard to the motion for a resolution tabled by Ms CLWYD and others on the imminent threat of closure of British coal mines (Doc. 1-176/80),
- having regard to its earlier resolutions in the field of energy policy, in particular in relation to:
- the proposal from the Commission of the European Communities on the 'medium-term guidelines for coal 1975-1985'[1]
- the future guidelines for the Community's coal policy in the framework of the overall concept of a Community energy policy[2]
- the proposal from the Commission of the European Communities to the Council for a Regulation on Community financial measures to promote the use of coal for electricity generation[3]
- the proposal from the Commission of the European Communities to the Council for a Regulation concerning Community aid for financing cyclical stocks of hard coal, coke and patent fuel[4]
- the Draft from the Commission of the European Communities for a Decision concerning coal and coke for the iron and steel industry of the Community[5]

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[1] OJ C 179, 6 August 1975, p. 15
[2] OJ C 159, 12 July 1976, p. 33
[3] OJ C 133, 6 June 1977, p. 18
[4] OJ C 241, 10 October 1977, p. 14
[5] OJ C 127, 21 May 1979, p. 39

- the Communication from the Commission of the European Communities to the Council on the energy objectives of the Community for 1990 and the convergence of policies of the Member States[1]
- having regard to the reports of the Committee on Energy and Research and the opinions of the Committee on Budgets and the Committee on Social Affairs and Employment (Doc. 1-662/81),

1. Affirms that coal remains the most important domestic source of energy in the Community;
2. Welcomes the growing role of coal in future energy supplies as reaffirmed at the European Councils in Strasbourg (1979) and Luxembourg (in 1980);
3. Considers that there is considerable potential for making greater use of coal as a substitute for oil and that this represents an opportunity to reduce the dependence of the European Community as part of a programme to diversify sources of energy;
4. Considers in view of the massive price increases on the world market that the time is ripe for a fresh attempt to define a European coal policy and welcomes the fact that the Commission shares this view;
5. Calls on the Commission, when elaborating a comprehensive coal policy, to reconcile the interests of the Member States with and without coal reserves;
6. Considers that this can be achieved by integrating elements of energy, regional, transport and social policy to provide aid for development and exploitation for the coal-mining regions thus enabling them to compete with imports from third countries and guaranteeing them minimum sales while also providing assistance to the areas without coal to enable them to make the major infrastructural adjustments necessary to permit the transport and use of coal;
7. Considers it essential to develop a stable relationship between domestic coal production and imported coal in order to provide the domestic producers and consumers concerned with reliable statistics on future developments;
8. Advocates in this context the stabilization and further expansion of domestic mining capacity in order to achieve the goal set by all Community institutions since 1973 of 270 million tonnes per year taking into account economic conditions;

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[1] OJ C 59, 10 March 1980, p. 41

9. Welcomes the fact that coal production is once again on the increase for the first time since 1979 and currently stands at approximately 250 million tonnes per year;

10. Takes the view that domestic production needs to be augmented by an import strategy which should not only include a further development of existing approaches but also the conclusion of contracts with foreign exporters on as long term a basis as possible and also the acquisition of shareholdings in and ownership of coalfields and production plant in third countries;

11. Is aware that peak demand will have to be met by recourse to the world market ;

12. Insists, however, that domestic production and imports from third countries must be coordinated in particular in such a way as to prevent domestically produced coal from being subject to inordinate pressure from imports in periods of slack economic activity;

13. Assumes, in the light of the major increases in world market prices, that the need for subsidies to domestic coal producers will decrease in the medium term;

14. Regards the creation of a market for domestic coal at prices which cover costs as a vital goal of economic policy, particularly to strengthen the European coal producers' capacity to withstand risks and to invest;

15. Considers it equally legitimate and essential to examine the extent to which disparities in the level of subsidies and clear differences in the attitude of the national governments to aid for coal-mining are economically and politically justifiable;

16. Takes the view in this context that it would have disastrous consequences for energy policy as a whole if pits were to be closed simply on the basis of short-term financial considerations where there were no cogent necessity due to reserves being exhausted, major geological problems or on other overriding grounds;

17. Takes the view in particular that proposals for large-scale pit closures are irreconcilable with the goals of the Community's energy policy;

18. Considers it essential:
   (a) to provide further incentives and encouragement to increase the use of coal and to encourage a more rapid replacement of oil and gas by coal in electricity generation in particular and in industry in general;
   (b) to intensify support for research and development and in particular the further development and earliest possible use of new technology in the fields of coal utilization and processing, such as fluidized bed combustion, above and below ground;

(c) to offer Community coal producers guaranteed markets for their planned levels of production, namely by measures to increase the proportion of coal-fired power stations and industrial plant and appropriate Community policies in relation to coal imports and support for prices;

19. Expects under these circumstances the mining companies
   - to undertake systematic exploration;
   - to maintain and expand mining potential, allowing adequate time for trial operations and to deal with any environmental problems;
   - to establish the optimum size of operation;
   - to rationalize their operations and investigate other possibilities of cutting costs;
   - to improve working conditions;
   - to develop new processes in mining technology;
   - to implement a manpower policy geared to the long term which seeks to ensure that the profession of miner remains attractive or becomes so once again by improving training and introducing better working conditions;

20. Points out that the recommendations of the ECSC Treaty provide the Commission with an important instrument for the implementation of its coal policy.

21. Recommends the Commission to develop further the aid programme for coking coal and to incorporate in the new comprehensive coal policy its earlier proposals for financing cyclical stockpiles and promoting the use of coal in power stations with fixed term programmes to solve the medium-term problems;

22. Further recommends the Commission to consider financing feasibility studies for projects relating to energy-intensive sectors of industry;

23. Expects the Commission to expand
   (a) the investment in coal facilities in the Community by means of EIB and NCI loans financed at preferential rates by the Community's budget;
   (b) the scope of investment and restructuring loans, through preferential interest rates, and possibly grants from the Community budget;

24. Also expects the Commission to adopt the same financial measures as set out in paragraph 23(a) and (b) for the construction of new infrastructures and such conversion projects as are necessary to increase consumption in those countries which do not have their own coal reserves;

25. Calls on the Commission to submit concrete programmes which all enable coal policy to become a focal area of European energy policy and will receive substantial support through the Community budget;

26. Instructs its President to forward this motion for a resolution together with the explanatory statement to the Council and the Commission of the European Communities and the parliaments and governments of the Member States.

B

EXPLANATORY STATEMENT

I. DEVELOPMENTS SINCE THE SECOND WORLD WAR

1. Coal was the only source of primary energy available in any quantity after the Second World War. It therefore rapidly became a focal point of economic interests. The importance of coal was reflected in the creation of the European Coal and Steel Community (ECSC) on 18 April 1951. The aim of this first European Community was to create a liberal market structure for the steel and coal sectors with a limited measure of intervention (Article 5). Article 4 of the ECSC Treaty provides the clearest illustration of this concept, namely:

> 'The following are recognized as incompatible with the common market for coal and steel and shall accordingly be abolished and prohibited within the Community, as provided for in this Treaty:
>
> ......
>
> ......
>
> (c) subsidies or aids granted by States, or special charges imposed by States, in any form whatsoever;
>
> ......

2. Articles 54 to 56 of the Treaty modify this explicit economic concept to a certain extent by providing for certain investment, research and social measures on the part of the Commission. Article 59 of the ECSC Treaty introduces a further provision which is important in this context, namely the possibility of allocating the coal resources of the Community if a serious shortage has been established. This article has, however, never been invoked in practice. In 1958/59, the High Authority proposed that Article 58 of the ECSC Treaty, which makes similar provisions for the event of a decline in demand, should be applied but this was rejected by the Council of Ministers.

3. In the 50s, coal provided the basis for economic reconstruction in Europe. But from 1958 on, the situation changed dramatically. Oil began to exert tremendous competitive pressure, which led to the relatively expensive coal being rapidly replaced by oil. The ECSC Treaty, which had been designed to deal with scarcities, had no adequate instruments at its disposal to cope with such a development. Apart from a few specialist uses and the coking coal sector, passive acceptance of market domination by cheap oil would have quickly led to a total end to the coal industry in the European Community. Confronted by the need to respond to the social problems which

were developing and to retain a strategic minimum reserve capacity of domestic coal, the individual national governments began to develop various systems of subsidies. As subsidies were however basically illegal under Article 4 of the ECSC Treaty[1], while at the same time the treaty did not make adequate provision for the economic situation which had emerged, legal bases were finally created in the Community to permit national subsidies to the coal sector (applicable since 1965; currently valid: Commission Decision of 25.07.1973 concerning coal and coke for the iron and steel industry in the Community, No. 287/73 ECSC, OJ L 259/36 of 15.9.1973, amended and extended most recently by Decision No. 3058/79/ECSC, OJ L 344/1, 31.12.1979, summarized in OJ C 36/2, 13.2.1980 and Commission Decision No. 528/76/ECSC, 25.2.1976 regarding the Community system of measures taken by the Member States to assist the coal-mining industry, OJ L 63/1, 11.3.1976). Both decisions are based among other things on the first and second paragraphs of Article 95 of the ECSC Treaty.

4. Despite these measures a large number of pits had to be closed. Coal production within the Community declined considerably:

Total coal production

1,000 t (t=t)

Year	The Nine	Germany	France	Belgium	United Kingdom
1960	436,878	148,000	55,961	22,465	196,703
1973	270,229	103,654	25,682	8,842	130,144
1978	238,100	90,103	19,690	6,590	121,685

Source: Eurostat

5. The risks associated with a strategic dependence on oil but also on other sources of energy such as gas, were quite evident. It was however politically impossible to implement further measures to attain greater coalmining capacity in view of the market imbalance between coal and oil which still exists. It is to the credit of the Commission of the European Communities that since 1973 it has constantly advocated the retention of coalmining capacity within the Community of 270 mill.tonnes

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[1] See ECR. Case 30/59 - miner's bonus, 1961 Reports, p. 3 et seq

per year[1]. Nonetheless, production fell below this figure, namely from 270 mill. t (t=t) in 1973 to 238 mill. t in 1978. The Commission of the European Communities attempted to encourage the retention of capacity by presenting what was known as a coal package. This consisted of

- a proposal on Community financial measures to promote the use of coal for electricity generation (OJ C 21, 29.1.1977, p.4)

- a proposal to finance cyclical stocks of hard coal, coke and patent fuel (OJ C 87, 7.4.1977, p.6) and

- a proposal for a Community aid system for intra-Community trade in power station coal (OJ C 243, 13.10.1978, p.3).

6. None of the measures proposed was approved by the Council. Only the abovementioned system of subsidies for coking coal and coke for the iron and steel industries in the Community provided a small Community subsidy to the coking coal sector, and this still exists.

7. The rejection of the coal package by the Council despite repeated efforts on the part of the Commission and the support which it received from the European Parliament, illustrates the fundamental dilemma of European coal policy and possibly of energy policy as a whole:

Apart from minor reserves, e.g., in Ireland, only four members of the Community are coalmining countries: United Kingdom, Belgium, France and West Germany. Although, apart from France, these sought to supplement their national subsidy programme by Community measures to support coal, they were constantly blocked by a veto from the Member States without coal reserves. This latter group had no economic interest in encouraging domestic coal production via the budget of the European Communities as long as the price of oil was continually becoming more and more competitive.

8. The price ratio to oil, however, began to change. Although the first oil price crisis in 1973/1974 was not sufficient to make domestically mined coal competitive, it should have sounded a warning. But the warning was only heard in the Commission and the European Parliament. It was still impossible to gain acceptance for abovementioned coal package, essentially because of a further economic argument:

Domestically mined coal faced another competitor, namely world market coal, which seemed set to occupy the position of oil should this become too expensive.

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[1] The Council too advocated the retention of coal production at the then current level under satisfactory economic conditions in its resolution of 17 December 1974 on the goals of Community energy policy 1985; OJ C 153, 9.7.1975, p.2.

9. Since the second oil price crisis of 1978/1979 and the constant increase in oil prices since then, the price situation has changed fundamentally. Domestic coal can now compete with oil. But it cannot compete with the coal on offer on the world market. Only some 20% of total coal production in the Community is currently fully competitive, in fact to such an extent that it is capable of making up the deficit vis-à-vis the world market prices of a further approximately 20%.

II. EUROPEAN COAL IN 1980

10. The situation in 1980 shows the results of the above trend and serves at the same time as the basis for all forecasts of future developments. It therefore merits relatively comprehensive statistics:

Coal production

1,000 t (t=t)

Year	The Nine	Germany	France	Belgium	United Kingdom
1980	247,225	94,492	18,136	6,324	128,208
Change 1979 - 1980	+ 3.5%	+ 1.2%	- 2.6%	+ 3.3%	+ 6.2%

Source: Eurostat and Commission

The rise in coal production is very largely a result of the increase achieved in the United Kingdom (see 4 above).

12. In 1980 coke production fell to 66.6 mill. t, which represents a fall of 0.9% on the previous year. This development is due to a drastic reduction in British production, mainly owing to the strike by steel workers and the low coke production in Belgium (less coking under contract for the USA) and finally, the steadily worsening situation in the steel sector in the last few months of 1980.

13. Pithead stocks increased by approximately 10.7 mill. t to 37.2 mill. t within the space of a year as a result of the general economic recession and simultaneous increase in imports. Particularly in Britain, most of the additional production was stockpiled.

Stocks at the end of 1980

Million t (t=t)

The Nine	Germany[1]	France	Belgium	United Kingdom
37.20	13.30	5.79	0.16	17.90

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[1] Including national coal reserves (7.26 mill. t (t=t))

Source: Eurostat 3-1981

Coke stocks at coke ovens and blast furnaces rose to 10.7 mill. t with the United Kingdom alone accounting for a rise of approximately 0.8 mill. t.

14. Consumption of coal and coke in the Community remained at virtually the same level in 1980 as in the previous year, namely 314 mill.t. Deliveries of domestically mined coal remained at around their 1979 level, while imports from third countries rose by 14.5 m to approximately 74.5 mill.t. (which is the equivalent of almost 25% of Community coal production). Total sales of Community coal production fell by 19 mill.t.because exports to third countries declined sharply.

15. The increase in coal consumption was produced by the electricity generating industry where demand rose by approximately 8 mill. t to some 184 mill. t.

Demand for power station coal in 1980 compared to 1979

Figures in mill. t

The Ten	Germany	France	Belgium	United Kingdom	Italy	Denmark	Netherlands
+ 7.8	+ 2.0	- 0.6	+ 0.5	+ 0.7	+ 1.3	+ 2.5	+ 1.3

The increased demand for coal from Community power stations was largely covered by coal from third countries.

16. Demand for coke from the Community steel industry fell by approximately 5 mill. t to some 61 mill t. Although it had proved possible to reduce the use of fuel oil even further to the benefit of coke, this downward trend resulted firstly from the strike by steelworkers in the United Kingdom and was then increasingly a reflection of the poor economic situation in the steel industry.

17. In 1980 sales of coal to other consumers fell by just under 8 mill. t to approximately 48 mill. t. The main reason for this was the mild weather and the slackening of industrial activity.

18. Coal imports from third countries rose sharply: by approximately 14.5 mill. t to approximately 74.5 mill. t (excluding coke).

Imports from third countries

Million t (t=t)

Year	The Ten	Germany	France	Italy	Netherlands	Belgium
1979	59.9	6.9	19.5	11.2	3.8	5.9
1980	74.5	7.3	22.6	14.3	5.0	7.3
1981 Estimated	77.0	9.5	22.3	13.6	5.3	8.1

Year	Luxembourg	United Kingdom	Ireland	Denmark	Greece
1979	0.2	4.0	1.1	6.7	(0.6)
1980	0.2	7.2	1.0	9.1	(0.5)
1981 Estimated	0.2	6.5	1.1	10.1	0.3

Source: Commission or Eurostat

19. Four supplier countries accounted for approximately 94% of coal imports from third countries.

Imports in mill. t.

Year	USA	South Africa	Poland	Australia
1979	14.8	15.9	15.4	8.0
1980	28.3	19.7	13.6	7.8

Source: Eurostat

20. The volume of world coal trade expanded in 1979 by 16% (+ 36 mill. t.) to approximately 266 mill. t. This increase continued in 1980 at a slower rate of growth to 280 mill. t. According to US producers, it was not possible to cover an additional demand of some 10 mill. t.

21. The price for power station coal on the world market in 1980 was very buoyant as a result of the trend in volume. It has drawn ever closer to the price for coking coal which so far has only risen by a relatively small amount.

Coking coal prices (World market)

cif ARA price[1]	Coking coal $/t
January 1978	62.10
January 1979	63.95
January 1980	68.50
October 1980	69.95
January 1981	75.70[2]

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[1] Excluding spot and one-off consignments; excluding demurrage

[2] Including demurrage

Prices for power station coal

cif price[1]		Power station coal $/t SKE
1st quarter 1978		38.22
1st quarter 1979		40.47
1st quarter 1980		52.03
3rd quarter 1980		59.78
4th quarter 1980	approx	65.00

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[1] Including demurrage

Price increases

Coking coal		Power station coal	
Jan. 79/Jan. 78	+ 3%	I. 79/I. 78	+ 6%
Jan. 80/Jan. 78	+ 10%	I. 80/I. 78	+ 36%
Jan. 81/Jan. 78	+ 22%	IV. 80/I. 78	+ 70%

The world market prices for coal have risen particularly dramatically in the first few months of this year, to approximately $75/t and more for steam coal and to over $80/t for coking coal.

22. Price of Community coal:

The published list prices for Community coal vary considerably. There is no need to present these in detail here as they are of limited significance: Community coal is largely sold at prices comparable with world market prices.

23. The position of the coal sector in 1980 may be summarized as follows:

- as coal production in 1980 increased in a period in which demand was slack and imports from third countries rising strongly, particularly in the United Kingdom, the stocks which had declined markedly in the previous period rose once again;
- sales of coal to the electricity generating industry continued to rise; the main beneficiary of this was imported coal but also domestically mined coal in the United Kingdom and West Germany;
- demand for coking coal and coke in the iron and steel industry fell; but this reduction in demand because of a decline in crude steel production was partly compensated for by the general replacement in blast furnaces of fuel oil by coke.

III. FORECASTS OF FUTURE DEVELOPMENTS

24. Any forecast of possible future trends in Community coal will depend mainly on two factors: demand patterns (a) and the trend in prices for both world market coal and domestically mined coal (b).

(a) Demand patterns

25. Consumption of coal amounted to 314 mill.t. in the European Community in 1980; the Commission estimated demand for 1990 at approximately 390 (350 to 420) mill. t., and for the year 2000 forecast a total consumption of approximately 580 (495 to 635) mill. t.[1]

26. These increases in demand are based on the following assumptions:

Energy consumption in the Community will continue to grow. Coal's share will rise, particularly in the field of electricity generation. This will involve building new power stations and replacing old power stations and the conversion of oil-fired power stations to coal. In the past two years the enormous price rises in the oil sector have already led to more and more conversion measures of this kind being undertaken. Subsidized national or Community loans might be made available in cases where the necessary investments for conversion appear threatened by high market interest rates. France for example provides national loans of up to 25% of the investment costs in the industrial sector. The United Kingdom is currently negotiating with representatives of the ECSC on their offer to provide a £50 m. loan for two years. Because of the extraordinarily high interest rates in the United Kingdom this would be at rates 4% lower than the ordinary Eurodollar market rates.

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[1] See COM(80) 117 final. The Commission estimates are based on figures from the Member States at the end of 1979.

The construction of additional new power stations and replacement of old power stations also has the extremely beneficial side effect of maintaining or even creating new employment[1].

The use of oil in electricity production as a whole in 1990 is currently estimated as follows:

The Nine	The Ten	Germany	France	Greece	United Kingdom
14%	14/15%	4%	4%	8%	13/14%

Belgium	Denmark	Netherland	Italy	Ireland
14%	20%	38/33%	40/45%	50%

Source: COM(81) 65 final.

In the context of overall energy policy, it is hard to justify the high proportions in some Member States.

27. The construction of new coal-fired power stations using sophisticated technology also has desirable environmental repercussions. Coal-fired power stations using fluidized bed combustion allow sulphur to be removed and thereby avoid the need for conventional flue gas desulphurization units. Improvements in filter technology have achieved more effective removal of particles. Carbon dioxide emission remains a problem. As the entry into service of new coal-fired power stations, particularly in conjunction with district heating systems (CHP) is likely to lead to the decommissioning of old power stations and a large number of domestic boilers both of which cause considerable pollution, this too must be regarded as a form of environmental progress.

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[1] See Wolfgang KLAUDER, Zu den Arbeitsmarktauswirkungen unterschiedlicher Energiestrukturen, MittAB 1/80; according to this, the operation of a coal-fired power station using domestically mined coal creates the highest level of employment of all types of power station.

28. A further promising market for coal will result from the conversion from oil to coal by other branches of industry. The main unresolved issue here is how quickly this will take place. Subsidized loans in the form referred to above, could expedite this development. The cement industry, for example, has pushed ahead with conversion throughout the Community.

29. The movement away from fuel oil could lead to a short-term improvement in the market for coking coal in the iron and steel industry. As, however, the long-term prospects for the steel industry are less than rosy, it is impossible to make any clear forecasts as to what may happen in the future.

30. In the domestic fuel sector, demand is likely to continue to decline partly as a result of an expansion in the coal-fired district heating network.

31. Coal gasification and liquefaction may turn out to be a further interesting potential market. Experimental results to date are so encouraging that attempts are now under way all over the world using demonstration plants of different sizes to establish the economic and practical feasibility of this technology. Although it is impossible to deal with all aspects of this in detail, it is worth noting that the production of liquid and gaseous basic materials for the chemical and transport sector is likely to become an ever more pressing need in future given steadily increasing oil and gas prices. Further developments in gasification technology are also needed to improve the efficiency of coal-fired power stations beyond their present level of 40%.

32. Until now generating enough heat to process coal has consumed the major part of the coal used. If it were possible to derive the necessary heat from a high temperature reactor, at least the economic prospects for coal gasification would become considerably more promising. A quantity of coal equivalent to the heat derived from the reactor would thus be saved. This would however, have to be offset against the cost of providing the equipment to supply the heat and the far more complicated gasification technology. The advantage derived would be far greater for coal gasification than for coal liquefaction.

33. It would be unrealistic to expect the HTR technology to be operational or gasification on a large scale to be feasible before 1995. Nevertheless it is important even now to accord priority to developing these technologies in particular in view of the need to find alternatives to oil and gas and to cover the increase in energy consumption.

34. The above considerations show that the forecast increases in Community demand are entirely plausible at least in terms of a general trend.

35. By comparison, in 1980 the Community produced 247 mill. t. of coal. For 1990, the Commission anticipates a Community average of between 246 and 256 mill. t. i.e. roughly the same level of production.

36. The figures provided by the Member States yield the following projections of production in the Community (in mill. t, t = t)[1]:

	1980	1990	Difference[1]
Belgium	6.3	7.0	+ 0.7
Germany	94.5	97.3	+ 2.8
France	18.1	12.5[1]	- 5.6
United Kingdom	128.2	127.3 - 137.6	- 0.9 - + 9.4
Italy	00	1.7	+ 1.7
Ireland	0.1	0.1	± 0
Total	247.2	245.9 - 256.5	

[1] Provisional

The obvious conclusion from these figures on domestic production, compared with the forecasts of overall consumption in 1990 and the year 2000, would be that once domestic production had been sold, the deficit would have to be made up on the world market. This conclusion is, however, only justified if one ignores the competitive position produced by the relative prices of Community coal and world market coal. Apart from the above-mentioned roughly 20% of European production, world market coal is far cheaper than domestically mined coal. The question therefore arises whether one can expect the world market to continue in future to be able to supply a satisfactory amount of imports to the European Community and how the price of this coal is likely to develop.

(b) Price trends on the world market and in the Community

37. In 1980, for the first time for many years, a supply-side limit was set to the volume of world coal trade. According to US producers, with an effective volume of approximately 280 mill. t., an additional demand of some 10 mill. t. could not be covered.

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[1] See OJ C 67/16, 26.3.1981

38. In the current year, 1981, up to 290 mill. t are likely to be offered for export. This assumes an optimum development of supply conditions in the major exporting countries. As, however, demand is likely to increase further there will again be a shortfall in supply.

Forecasts of future trends can only be made in the light of the situation in the major producer countries:

39. The world market is supplied mainly by the following countries: USA, Australia, Canada, South Africa and Poland. In the distant future, countries such as Colombia, China, India and some African states may emerge as suppliers. The coal reserves in these countries are so immense that the world demand for coal could be covered for centuries even allowing for the maximum rates of growth (optimistic estimates range up to at least 300 years). But the individual producer countries are having major problems in adapting quickly to the rapid increase in demand. The major problems consist of carrying out the necessary restructuring of the infrastructure and the associated problems of environmental protection.

40. In 1980, the USA exported a total of 80 mill. t and plans a slight increase for 1981. Thus the American volume of exports will have virtually doubled between 1977 and 1981. According to the National Coal Association (NCA), American coal producers would have been able to find a market for an additional 10 mill. t in 1980. For the time being transport and loading capacities have probably reached their limit. Even in 1980, waiting time for freighters in the coal ports on the Eastern seaboard reached levels of two to three months and were tending to become even longer. Demurrage costs of US$15,000 per day mean that the cost of waiting are virtually just as high as other freight costs and are estimated at between US$13 to 20 per t depending on the port.

41. The situation is unlikely to improve in the immediate future:

Firstly, on 7 October 1980, the Government of the United States enacted a bill providing that until 30 June 1987 all coastal shipping (between the North American ports) carrying coal for domestic consumption is to have priority for loading in the ports over all other ships carrying coal for export overseas.

Secondly, the change of government in the United States means that there is considerable doubt as to whether the extensions to the transport and loading capacity which had been planned for the next few years and which would involve considerable extra cost will take place. Subsidies to railways have already been reduced and there are reasons to fear that no state aid will be forthcoming for the major sums needed to expand harbours (deepening the fairway). At all events for a limited period of some three to five years no improvements are likely.

42. Similar problems exist in Australia. Loading capacity in South Africa is also currently being utilized to the full. There is the additional problem in South Africa of a certain amount of political uncertainty. Poland was unable to meet its contractual obligations for deliveries in 1980 and on its own admission will be unable to do so for the next few years.

43. To summarize the supply-side situation it is reasonable to conclude that the problems which are emerging will not be fully resolved at least in the short term of up to five years. It is quite impossible for Europeans to gauge the effect of difficulties arising from environmental problems and sociopolitical phenomena such as the continuing strike movement in Poland, industrial disputes as seen in recent years in the USA (1978 and 1981) or Australia (1980) or the existing social conditions in coal mining in South Africa.

44. A lasting change in the nature of the world'c coal market from a buyers' to a sellers' market would represent a further factor affecting prices: in 1980 for the first time for many years, there was no surplus supply in evidence on the world coal market. Quite the contrary: the level of world trade was clearly limited by the level of supply.

45. In 1978 and 1979 the United States was a minor supplier to the world market for power station coal. The United States accordingly supplied only small amounts (approximately 1 mill. t per annum) of power station coal to Europe. In the course of 1980, the sharp rise in demand for power station coal enabled Australia, South Africa and Poland to sell all their stocks available for export. Nonetheless the effective demand was not fully covered. As a result the United States was able to increase its exports dramatically and despite its uncompetitive prices at the beginning of 1980 became for the first time a major supplier of power station coal to the Community. The country which had previously been a minor supplier to the world coal market had become the market leader.

This meant that Australia, South Africa and Poland were able to increase their fob prices substantially and thus adjust to the price level of the United States. The prices for American coal are now in some cases lower than those of their competitors (particularly Poland). The question therefore arises why the price for US power station coal has not continued to rise.

46. The reason why US coal has temporarily held down the average price on the world market was that the additional demand for US power station coal had not made itself fully felt on the fob price in the country itself. This in turn was due mainly to surplus capacity at the production level. Any forecast of future price developments on the world coal market are therefore particularly dependent on the situation and price trends on the US coal market.

47. The figure of 100 mill. t surplus capacity which has been quoted for many years refers to the 1977 level. The surplus capacity at this time was the result of mistaken estimates of coal demand in the United States. The mining industry had counted on a rapid increase in demand as a reaction to the first oil price crisis in 1973/74 and expanded its production capacity accordingly. When demand then only grew at a moderate rate, this posed major problems for the mining companies. Pits were closed down and the development of new mines postponed. Demand only rose substantially after the second oil price crisis in 1978/79.

48. The present surplus capacity is by and large unlikely to be standby capacity which can be mobilized immediately. It is far more likely that this will take some time. The administrative obstacles to coal production and coal transport mean that it is even more probable that the utilization of new capacity will require extraordinarily long lead times.

49. Consumption of coal by the electricity generating industry in the USA is likely to continue to rise. Thus the market for power station coal in the United States could rapidly come under pressure. One confidential report, for example, anticipates an average price increase of $10/t coal ex-pithead in the USA at the beginning of 1981. This would mean a price increase in the case of power station coal of up to 50%.

50. An increase in the price of coking coal on the domestic market would depend on whether the US steel industry once again regains its former production level or whether coking coal is used in other areas of consumption.

51. The recent deregulation of oil prices could provide additional stimulus to domestic US demand for coal. Such surplus supply as is still available would then be reduced even further.

52. Overall it seems likely that the prices on the US coal market are likely to rise. This would affect prices on the world market.

53. One element in the uncertainty surrounding prices are possible shifts in exchange rates. For example in the last few months the rise in the exchange rate for the dollar has pushed up world market prices for coal in terms of the European currencies and thus enhanced the competitiveness of domestic coal. This does not however apply to the United Kingdom because Sterling has also been strong throughout this period.

54. The price situation on the world market may be summarized as follows:

Surplus supplies have disappeared from the world market. The main reasons for this were:

- a market increase in demand for steam coal,
- restriction of the growth in supply mainly as a result of production and export cuts in Australia and Poland and bottlenecks in US harbour capacity.

One consequence of this has been that the price of power station coal has risen markedly and drawn even closer to the price of coking coal.

The price of coking coal has so far however remained virtually unaffected by the upward trend in power station coal prices because of the crisis in the steel sector.

Further pressure on the market is likely to build up because even conservative estimates of demand can only be met with an optimum development in the supply situation.

On the basis of the information currently available it is perfectly possible that the world coal market could change from a buyers' market to a sellers' market within a short space of time. The major determining factor of prices on the world coal markets is likely to be the development on the US coal market.

And quite independently of this, further factors producing upward pressure on the prices of power station coal can already be discerned. This could lead to a situation in which the electricity generating industry turns more and more to coking coal to produce electricity because of the constantly deteriorating price ratio of power station coal in terms of thermal equivalence. Under these circumstances the price for coking coal would rise independently of the situation in the steel industry.

55. All this does not however necessarily mean that in the foreseeable future prices on the world coal market are likely to draw level with the production prices of Community coal which themselves vary considerably. Although the rates of increase for prices on the world coal market are far higher in percentage terms than on the European market, the absolute

figures may nonetheless lag behind the development in Europe because of the far lower base figures. And the prices for domestic coal production are bound to rise in the next few years because of rising costs.

56. In the final analysis it is impossible to do more than speculate as to whether world market prices will continue to remain below domestic prices, catch up with them or even overtake them. In the light of the aspects referred to above, we have assumed that they will draw more or less level. Any minor price differences which might remain could be countered by reference to the advantages of European coal such as security of supply, guaranteed quality and purchasing procedures free from national interests which can interfere at any time with commercial contracts.

(c) Consequences for policy in the Member States and the European Community

57. A range of other factors also determine the consequences for policy of the assumptions above.

Therefore the following sections present a brief survey of the probable reserves and types of coalfield etc. in the four major mining countries in the Community (source: World Coal Study II and a variety of material for Belgium). A brief statement on the manner of presentation is necessary:

58. Types of coal

When referring to individual coal fields below, some indication is given of the quality of the coal produced, using a seven point scale: Group I corresponds to anthracite (best quality) group II is non-coking coal, Groups III/IV/VII are broadly speaking steam coals (power stations and industri furnaces) and Groups V/VI are coking coals. Piece size is not indicated. The mix of grades making up a field's output does vary, so these figures are indicative only.

59. FRANCE

French coal is usually found in jagged and difficult geological formations which make extraction problematic. In addition, these formations are deep - between 700 and 1250 m, compared with 300 - 400 m for those in the United Kingdom. Production may continue to fall (1).

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[1] Assurances have been given in the most recent official statements from the area concerned, Nord/Pas de Calais, however that the pit closures will take place more gradually than originally planned. See too the uncertainty surrounding forecasts of production for 1980 in Section 36 above.

Exploitable reserves amount to 1370 million tons, of which 450 million tons are regarded as exploitable under certain technical and economic conditions. Only 30 million tons of these are located in the Nord/Pas de Calais region.

There are three main mining areas. Production in 1980 was as follows (provisional): (in 1000 t)

Nord/Pas de Calais	4.470	Groups II + V. Sometimes I and III.
Lorraine	9.809	Group VI
Centre/Midi	3.857	Mainly Groups IV and V. Sometimes I, II + VI.

Production is nationalised under Charbonnages de France.

60. FEDERAL REPUBLIC OF GERMANY

The Federal Republic produces hard coal by deep mining. Approximately 230 billion tons of hard coal are thought to exist, of which 24 billion tons are considered to be economically and technically recoverable. These reserves are mainly in the Ruhr area which accounts for c. 80 % of present production.

There are four main coalfields. In addition to the Ruhr, there are coalfields at Aachen, in Niedersachsen and in the Saar. Production in 1980 was as follows (provisional): (in 1.000 t)

Ruhr	76.117	Some Groups I, II, III; mainly Groups V + VI.
Aachen	5.399	Even spread between Groups I, II, III, IV and V.
Niedersachsen	2.276	Group I
Saar	10.128	Only Groups VI and VII.

The deep mining industry is in the hands of six mainly privately-owned enterprises. About three-quarters of production is by Ruhrkohle AG.

61. UNITED KINGDOM

Production of hard coal in 1980 amounted to 128 million tons, making the National Coal Board the largest coal mining organisation in the Western world. Of total, approximately 90 % was produced from deep mines.

It is thought that c. 190 billion tons of coal exist, of which 45 billion tons are recoverable with present techniques; this would ensure 300 years' supply at present rates of depletion. About 4.5 billion tons of recoverable reserves exist at present mines, and 2.5 billion tons at new mines already planned. The NCB expects to add new annual production capacity (some of which will replace exhausted mines) of 4 million tons p.a. each year.

Production is fairly evenly scattered between six major coalfields, as follows (Opencast mining is excluded from these figures, which refer to 1980) (provisional): (in 1.000 t)

Scotland	8.115	Mainly Groups V, VI and VII.
Northern	14.654	Groups V, VI and VII.
Yorkshire	31.001	Groups VI and VII only.
North Western	11.344	Groups VI and VII only.
Midlands/Kent	38.296	Groups VI and VII only.
South Wales	7.814	Even spread between Groups I, II, III, IV, V.

The higher grade coal from South Wales is produced in difficult geological conditions. Working is easiest in the Yorkshire and Midlands fields.

62. BELGIUM

Coal is Belgium's only indigenous source of energy, and provides around 12% of total primary energy needs. Reserves are significant but extraction is costly. Imports cover about one-third of needs and lignite about 70%.

There are two main coalfields, and 1980 production was as follows (provisional): (in 1,000 t)

Kempen	5.948	Groups V and VI only
Sud	377	Group I, although usually spread between Groups I, II, III and IV.

63. A further factor which needs to be taken into account is the question as to what extent the importing countries, following what h itherto has only been a partial movement away from oil, will have the necessary foreign currency to buy coal from third countries. And finally it is also not clear what the social consequences would be of closing further pits. The overall impact of such measures depends very considerably on the economic situation as a whole, and the closure of coking coal pits depends to a large extent on the development in the steel industry. Precisely because of this aspect, the coking coal market has experienced enormous problems in recent years and there is still no end in sight. As production capacity can only be adjusted on a very long-term basis (starting up a new pit takes approximately ten years) the national coal companies have always had to rely on the forecasts they receive from the steel industry. These frequently then rapidly proved inaccurate. The present steel crisis, therefore, is causing tremendous difficulties in terms of structural adjustments in coking coal plant designed for considerably higher levels of production, such as in South Wales. Although the interdependence of the various sectors of the economy such as steel production, coking coal, and

transport capacity is well-known in theory, the macro-economic costs of changes to the basic structure cannot be predicted with any reliability: the abovementioned example of South Wales shows the following: the closure of steel works or their conversion to coal from third countries leads to a sharp decline in demand for coking coal from Welsh pits and simultaneously to a severely reduced demand for transport from these pits. This in turn may lead to pit closures and a reduction in transport capacity and thus to additional unemployment which from the regional point of view at least can assume major proportions. Further costs are created by the need to create new jobs or at least pay unemployment benefit and these have an incalculable effect on other sectors of the economy.

64. Eleven pits with a production capacity of 2.1 mill. t were closed in the Community in 1980 (for comparison, in 1979 10 pits with a capacity of 2.5 mill. t were closed). In 1981 it is planned to close 5 pits with a capacity of 1.7 mill. t, excluding the United Kingdom for which no precise figures are currently available.

65. The Government of the United Kingdom had intended to phase out existing subsidies completely over the next few years which would have led to the closure of a considerable number of British pits (according to press reports 25 pits with a capacity of 4.2 mill. t in 2 years) assuming a continued low level of steel production and lower world market prices at least in the short term. This decision, which was reported in the press but denied by the NCB, has, however, been rescinded. New plans are currently being drawn up. Subsidies will continue to be necessary.

66. Subsidies exist in all the Community mining countries, albeit in very different national forms. The systems are so different that any comparison needs to be interpreted with a great deal of caution. There is not only a difference between direct subsidies as paid either to producers, transporters or customers and indirect subsidies but account also needs to be taken of legislative measures such as guaranteed purchases by the electricity generating industry, import restrictions and the entire welfare system of any given Member State in terms of its social security provisions and health insurance.

67. Although it is extremely difficult to compare subsidy arrangements, it is relatively simple to establish that the level of subsidies varies considerably. They are at their lowest in the United Kingdom.

The Commission recently calculated official subsidies per tonne in 1979 at:

	EUA/tce[1]
West Germany*	12
Belgium	53
France	29
United Kingdom	3

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*Excluding measures under the Third Law on the Use of Coal to Generate Electricity.
If these measures were included this would yield a figure for subsidies of approximately 20 EUA/tce.

68. As it appears essential to maintain Community production at its present level, subsidies will remain necessary at least in the near future in order to prevent it becoming less competitive as a result of the present lower prices for world market coal.

69. Distortions of competition could be used as an argument for approximating the levels of subsidy in the Community to ensure the same basic conditions. But this problem is more apparent than real: as there is no significant trade in coal between the Member States, with the exception of coking coal, and national products are sold almost exclusively on national markets, there is no genuine competition. This concept should be kept in mind in future, however, as prices gradually draw closer to the level of prices on the world market. The abovementioned rules governing Community subsidies mean that these can only ba granted to cover losses and not to permit profits. Thus the relatively low level of subsidies in Britain simply reflects the fact that greater competitiveness with world market coal has been achieved.

70. Your rapporteur draws the following conclusions from the above:

71. Stabilization and expansion of domestic mining capacity in the Community

The Community should continue to accord a high priority to ensuring that the proportion of future coal demand which it can cover from its own resources without being dependent on the fluctuating volume and prices of imported coal is effectively safeguarded by stabilizing and extending its domestic mining capacity.

72. This means that the mining companies must:

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[1] OJ C 345, 31.12.1980, p. 20.

- carry out the necessary explorations on an adequate scale at the right time and with success;

- make the necessary investments to replace old mines and open up new seams and develop additional production capacity in adjoining coal fields or in new mines, taking due account of adequate lead times for these investments. Account must be taken in the lead times of the environmental problems involved in opening new mines (tips, headgear, stockpiles of mined coal, possible future subsidence, etc.);

- exploit the potential for rationalization to the full;

- implement a manpower policy conceived for the long-term;

- continue and intensify research and development in the areas of mining technology, coal utilization and coal processing.

73. Energy policy should

- encourage investments by mining companies;

- provide incentives and promote the development of coal-consuming capacity and lead to a more rapid substitution of oil and gas by coal;

- seek to ensure that the coal produced is sold at prices which cover costs and also examine to what extent subsidies can be justified in economic and political terms;

- coordinate domestic production and imports from third countries to prevent undue pressure on domestic coal from imports in periods of slack economic activity;

- develop without delay an import strategy based both on the conclusion of contracts on as long-term a basis as possible with foreign exporters and the acquisition of coalfields and production plant in third countries. Although it is extremely important to conclude long-term contracts to safeguard supplies, account should also be taken of the fact that demand peaks produced by short-term fluctuations can by their very nature only be covered on a short-term basis by making use of the greater flexibility of the world market;

- intensify support for research and development and in particular the refinement and exploitation as soon as possible of modern technology for coal utilization (e.g. fluidized bed combustion) and coal processing (gasification and liquefaction).

74. The Community contribution

The coking coal arrangements which have been in force since 1967 in a variety of forms represent an important example of how the Community can make a sensible and successful contribution to energy policy. These play a major part in ensuring that the major proportion of coking coal used by the Community's iron and steel industry comes from domestic sources.

The Commission uses the ECSC perequation levy to provide subsidies to encourage research and development in mining.

In addition it grants loans for investment and restructuring. It also provides certain subsidies for demonstration projects on coal gasification and coal liquefaction from the general Community budget.

75. All these measures, however, can only be regarded as a useful first step since the objective of ensuring domestic supplies of energy has still not been achieved. The Community must therefore undertake new measures to achieve its coal policy objectives. Since an approach should include:

- extension in good time of the Community coking coal regulation currently due to expire at the end of 1981 and with due account of the demands from the European Parliament contained in the IBRÜGGER report (Doc. 69/79);
- clear recommendations to the governments of the mining countries to use the instruments at their disposal to provide aid for investments as part of their national energy policy and to take further measures to stabilize and further increase coal production to the extent to which this is technically feasible.

Your rapporteur cannot comment on the question of the closure of individual pits. He would, however, appeal to national governments and the mining companies responsible to reconsider any plans which may currently exist to close pits (for example in the French Nord/Pas de Calais region or the various British coalfields in Scotland, the North-East, Yorkshire and South Wales) and pay very close attention to the exploitable reserves of coal remaining and to include consideration of general macroeconomic constraints in any evaluation of geological problems;

- further clear recommendations to all governments to provide effective incentives and encouragement for the replacement of oil and gas by coal and the creation of new coal consumption capacity;
- far greater use of Community resources from the Community budget for subsidizing loans to enable mining companies to carry out their extensive long-term investment and restructuring programmes;

- greater encouragement of research and development in mining;
- further improvements in vocational training in mining in order to retain or restore the attractiveness of mining as a profession; this includes the use of technology to improve working conditions;
- further measures to develop coal gasification and coal liquefaction to the point at which they become fully operational with the aim of establishing a Community programme for the large-scale exploitation of this technology;
- arriving at an agreement between the Member States on a sufficiently effective coordination of imports from third countries and adjustment to domestic production in the Community.

76. Your rapporteur is fully aware that any new initiative on coal from the Community would be doomed from the outset if it did not take account of the needs of those Member States where no coal is produced. As part of the energy policy goals for 1990 (OJ C 149, 18.6.1980,,p.1) these Member States too affirmed the priority of coal.

77. In so doing they presumably had in mind the cheapest coal available at any time, i.e. currently world market coal. The use of large quantities of coal requires the abovementioned infrastructure investments not only in the coal-mining countries but also similar programmes in the member countries switching from oil to coal. This expenditure on infrastructure could be linked with the new coal package of the European Community as part of Community regional, transport or social policy. The extension of harbour and transport capacity which has already begun in some places and the construction of plant for coal combustion or processing require major sums for investment which the coal-supporting countries might be willing to agree to being provided as part of, for example, regional policy in return for concessions on the part of the non-coalproducing countries in the more restricted field of a new coal package.

78. Your rapporteur believes that the coal policy of the European Community needs a fundamental new initiative. Coal must not only maintain but also develop its role as a central element in European energy supplies. Unless this is achieved any future energy policy would be doomed to failure.

OPINION OF THE COMMITTEE ON BUDGETS

Letter from the chairman of the committee to Mrs WALZ, chairman of the Committee on Energy and Research

Strasbourg, 7 July 1981

Subject: Motion for a resolution tabled by Mrs CLWYD and others on the imminent threat of closure of British coal mines (Doc. 1-176/80)

Dear Madam Chairman,

At its meeting of 6 July 1981 the Committee on Budgets considered the abovementioned motion for a resolution. It draws attention to the fact that the situation has changed in the meantime and accordingly considers the motion for a resolution no longer relevant. It goes without saying that, in the event of closure, social measures could have been envisaged.

With regard to the own-initiative report drawn up by your committee, the Committee on Budgets recalls its opinions on the proposal from the Commission for regulations on Community financial measures to promote the use of coal in power stations, on the financing of cyclical stocks of hard coal, coke and patent fuel and for a decision concerning coal and coke for the iron and steel industry of the Community.

The Committee on Budgets considers an overall policy for the domestic production and use of coal as well as an import policy, to be essential if funds are to be used economically in cases of intervention. In this context it advocates that unprofitable production units should not be maintained and that social measures should be provided for the workers affected.

Yours sincerely,

(sgd) Erwin Lange

Present: Mr LANGE, chairman; Mr NOTENBOOM, vice-chairman; Mr BAILLOT, Mr BARBI, Mrs BOSERUP, Mr DANKERT, Mr FORTH, Mr GEORGIADIS, Mrs HOFF, Mr NEWTON DUNN, Mrs PRUVOT (deputizing for Mrs SCRIVENER), Mr SIMONNET, Mr TUCKMAN and Mrs VAYSSADE (deputizing for Mr JALTON).

OPINION OF THE COMMITTEE ON SOCIAL AFFAIRS AND EMPLOYMENT

Draftsman: Mrs CLWYD

On 16 July 1980 the Committee on Social Affairs and Employment appointed Mrs CLWYD draftsman.

It considered the draft opinion at its meetings of 14 April 1981, 13/14 May 1981 and adopted it by 18 votes to 2 with 1 abstention on 14 May 1981.

Present: Mr van der Gun, chairman; Mr Dido, vice-chairman; Mr Frischmann, vice-chairman; Mrs Clwyd, draftsman; Mrs von Alemann (deputizing for Mr Calvez); Mrs Baduel Glorioso; Mr Boyes; Miss Brookes, Mrs Cassanmagnago Cerretti, Mr Ghergo (deputizing for Mr Estgen), Mr Henckens (deputizing for Mr McCartin, Mr Kellett-Bowman, Mrs Nielsen, Mr Prag, Mrs Salish, Mr Spencer, Mrs Squarcialupi (deputizing for Mr Ceravolo), Mr J.D. Taylor, Mr Vernimmen (deputizing for Mr van Minnen), Mr Rogers (deputizing for Mr Abens) and Mr Verhaegen.

I GENERAL COMMENTS

1. Community guidelines on energy policy, endorsed by the Commission and by the Council, have been in force for over five years. These guidelines embrace the stabilisation and later expansion of Community coal production but in most Member States there has in fact been a reduction in coal production capacity since the guidelines were adopted. Nevertheless, with Community support, substantial sums of money have been invested in expanding the future capacity and improving the efficiency of coal production in Member States since 1974.

2. The UK is the largest Community coal producer and the UK coal industry has witnessed the largest increase in investment during recent years. This investment has now begun to yield results in terms of output and productivity. In 1980, total output in UK coal mining rose by 6.3% while output per manshift rose by 3.1%, thereby reducing the Community's dependence on oil. At the same time the UK coal industry provided employment for 230,000 mineworkers.

3. But the success of the investment programme in the UK is being jeopardized by temporary market weakness which is being exacerbated by a fourfold increase in coal imports since 1978. The effects of this are most pronounced in the coking coal market due to the reduction in steel production capacity. As UK produced coking coal does not cross national frontiers to be consumed, the industry does not qualify for transport aids. Coking coal output is therefore being stocked and the producing collieries threatened with closure.

4. Coking coal production in the UK is concentrated in areas of high unemployment, ie South Wales, the North East and Scotland. In the South Wales coalfield alone,where unemployment levels already range from 13 to 18 per cent, and where 25 per cent of UK coal reserves are located, up to twelve collieries employing more than 7,000 workers could be at risk. The situation in the UK is closely paralleled by that facing other Community coal producers, although in the absence of Community restrictions on third country coal imports, other Member States protect their coal production capacity against such imports by national measures.

5. In February 1981 the UK coal industry announced plans to reduce capacity by 10 m tonnes mainly in regions where unemployment is three times the Community average. Discussions are now taking place between the industry and the UK Government on measures of financial support needed to avoid these closures. In other Community countries substantial job losses have already taken place as a consequence of colliery closures, even during the period when the Energy Council has been committed to expanding coal capacity. 5,500 mining jobs have been lost in Belgium as a result of ending coal production in the Sud coalfield during the past six years. In the same period there have been eight closures in the Pas de Calais coalfield in France, with a consequent loss of 6 m tonnes of coal capacity; a colliery faced with closure in the Lorraine coalfield has been occupied by its workers for 8 months; and there have been 15 mine closures in West Germany. For these reasons the problem is one requiring Community action.

6. Such action could take the form of:

- increased Community grants to maintain coal production capacity and prevent increased unemployment in depressed coal producing regions throughout the Community;
- Community representations to the UK Government to prevent the reduction in national financial aid to coal production, which is now taking place;
- amendment of the regulations governing transport subsidies for coking coal and coke to remove the stipulation that such transport must cross national frontiers in order to qualify for aid, regardless of the distance carried;
- the implementation of Community restrictions on third country coal and coke imports to supplement the national import controls which already exist in some Member States.

II CONCLUSIONS

The Committee on Social Affairs and Employment asks the Committee on Energy and Research to take account of the following observations:

1. Invites the Commission to assess carefully the availability and the exploitable reserves of coal in the Community as a whole with due regard to the competitiveness of coal in terms of other sources of energy in order to be able to estimate the appropriate level for investments to benefit domestic coal production compared with the investments needed to supply sources of energy other than coal;

2. Agrees to the principle that coal imports from third countries should not be judged solely according to economic criteria but also from the point of view of safeguarding employment in the Community;

3. Affirms that as part of Community energy policy, the coal sector should receive a fair allocation of aid to permit production to continue and safeguard employment not only in Great Britain but also in other countries where longer-term crises are developing;

4. Points out that the decision of the British Government referred to in the motion for a resolution is embodied in the 1980 Coal Industry Act and will lead to elimination of all operating grants to the UK coal industry by 1983;

5. Asks that the Commission should be requested to consider the anomalies surrounding transport aids for transporting coal within the EEC countries;

6. Stresses that in view of the urgency of the issues to which the motion for a resolution relates, it should be dealt with as a matter of priority by Parliament and the Commission.

MOTION FOR A RESOLUTION (DOCUMENT 1-176/80)

tabled by Mrs Clwyd, Mr Gallagher, Mr Key, Mr Seal, Mr Collins, Mr Megahy, Mr Albers, Mrs Viehoff, Mr Schmid, Mr van Minnen, Mr Griffiths, Mr Rogers, Mrs Buchan, Mr Caborn, Mr Boyes, Miss Quin, Mrs Weber, Mr Adam, Mrs Seibel-Emmerling, Mr Muntingh and Mr Kavanagh

with request for urgent debate pursuant to Rule 14 of the Rules of Procedure on the imminent threat of closure of British coal mines

The European Parliament,

- having regard to its previous resolutions calling for the expansion of Community coal production,
- convinced that, in the continuing energy crisis, there is an unanswerable case for increasing investment in the coal industry as part of an overall Community energy policy,
- concerned that the growing importation of coal from third countries into the Community, and in particular of coking coal, could soon result in extensive pit closures leading to redundancies among mineworkers and the absurd situation of reducing coal production capacity,

1. Considers that it is clearly necessary for the Community to increase its investment in indigenous coal production at this time;

2. Condemns imports of non-Community coal to the UK where this could lead to the closure of Community coal mines and the loss of skilled employment;

3. Calls on the Commission immediately to intensify its financial assistance to the British coal industry through the provision of substantial grants and loans under the terms of the ECSC and EEC Treaties, so as to improve the industry's efficiency and competitivity;

4. Considers that, in the short term, this would be a useful and practical step in the direction of reducing the burden of the unfair British financial contribution to the Community budget;

5. Requests the Commission to make representations to the British Government urging it to reconsider its decision not to increase subsidies to British coking coal as this decision will continue to result in growing imports of coking coal at the expense of indigenous coal, which goes against the EEC's established policy of increasing domestic production;

6. Requests the Commission to consider the anomalies surrounding transport aids for transporting coking coal within the EEC countries;

7. Instructs its President to forward this resolution to the Council and Commission.

JUSTIFICATION

Urgent procedure is justified by the imment threat of closure facing many coal mines in the UK, as a result of increased imports of coking coal, which will reduce domestic production of coal and cause further unemployment.

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ACTION H-03

INFO OCT-01 ADS-00 EUR-08 SS-15 EB-04 NSC-06 /037 W
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INFO AMEMBASSY COPENHAGEN

UNCLAS SECTION 1 OF 2 HELSINKI 4095

CORRECTED COPY (PARA 1D TEXT)

E.O. 12065: NA
TAGS: ENRG, OREP, FI
SUBJ: STAFFDEL SINDELAR

REF: STATE 207560

1. IN RESPONSE TO REFTEL, THE POST HAS INTERVIEWED KEY REPRESENTATIVES OF COAL IMPORTANG AND END-USING ENTITIES LOCALLY. THEIR COMMENTS, WEIGHED AGAINST AVAILABLE DATA FROM STATISTICAL AND OTHER SOURCES, LEAD TO THE CONCLUSIONS SUMMARIZED BELOW:

(A) FINLAND, WITH NO FOSSILE FUEL RESOURCES, IS EXPECTED TO CONTINUE IMPORTING COAL AT AN INCREASING RATE THROUGH THE YEAR 2000. FINNISH IMPORTS, AMOUNTING TO 4.7 MILLION TONS IN 1980, ARE EXPECTED TO GROW TWOFOLD BY THE END OF THE DECADE AND GRADUALLY LEVEL OFF AT NO LESS THAN 15 MILLION TONS BY 2000. STEAM COAL IS CONSIDERED TO AFFORD A PERMANENTLY ATTRACTIVE OPTION TO NECLEAR AND HYDRO-ELECTRIC ENERGY SOURCES BY THE COUNTRY'S MAIN END-USER SECTORS WHICH INCLUDE POWER GENERATION IN ADDITION TO TE PULP AND PAPER AS WELL AS CEMENT INDUSTRIES.

(B) FOLLOWING THE EXPANSION AND DREDGING OF PORTS IN HELSINKI (HANASAARI), INKOO, KOTKA (MUSSALO) AND PORI (TAHKOLUOTO), SCHEDULED TO BE COMPLETED IN 1983, IT WILL BE POSSIBLE TO ACCOMODATE VESSELS WITH A LOAD CAPACITY OF 60,000 TONS. MODERNIZATION PLANS UNDERWAY FOR COAL HANDLING AND TRANSFER FACILITIES WILL FURTHER CONTRIBUTE TO SURMOUNTING
T
PRESENT TECHNICAL CONSTRAINTS. NO NEW COAL-CAYYYING VESSELS ARE ON ORDER OR ENVISAGED BY LOCAL SHIPOWNERS; LOCAL CARRYING CAPACITY WILL BE SUPPLEMENTED BY LEASED BOTTOMS.

(C) ENVIRONMENTAL CONSIDERATIONS SET THE RECOMMENDED SULFUR CONTENT OF COAL AT BELOW 1.5 PERCENT. ACCORDING TO LOCAL IMPORTERS, US-ORIGIN COAL COMMONLY HAS A 1.5 - 1.8 PERCENT SULFUR CONTENT WHICH REPRESENTS A POTENTIAL DRAWBACK TO US EXPORTS.

(D) PRICE AND QUALITY ARE THE DETERMINING FACTORS IN FAVORING GIVEN SOURCES OF COAL. FINNISH IMPORTERS CONDUCT A INDEPENDENT POLICY SUBJECT TO NO GOVERNMENTAL CONTROL EXCEPT FOR A LICENSING REQUIREMENT. WITH A SHARP DECLINE IN THE AVAILABILITY OF COAL FROM POLAND, EXPECTED TO REMAIN IN AN UNDEPENDABLE SOURCE IN THE FORESEEABLE FUTURE, THE UNITED STATES RANKS HIGH AS A FUTURE SUPPLIER TO THE POINT OF POSSIBLY CAPTURING THE LION'S SHARE OF THE MARKETS THE CURRENTLY HIGH DOLLAR EXCHANGE RATE IS REPORTEDLY DIVERTING SOME FINNISH PURCHASES TO THE UNITED KINGDOM BUT THIS IS REGARDED AS A PASSING FEATURE. THE LEVEL OF IMPORTS FROM THE SOVIET UNIONIS EXPECTED TO REMAIN FAIRLY STABLE WITHIN A BILATERAL TRADE AGREEMENT. FINNISH COAL IMPORT DATA FOR 1980 AND JANUARY THROUGH JUNE 1981 IS GIVEN BELOW.

1980 (JANUARY THROUGH DECEMBER)

HELSIN 04095 01 OF 02 131228Z

COUNTRY OF ORIGIN	QUANTITY (METR. TONS)	PERCENTAGE SHARE
UNITED STATES	533,372	11.42
UNITED KINGDOM	3,924	0.09
POLAND	3,533,449	75.66
SWEDEN	4,041	0.09
SOVIET UNION	589,300	12.61
CANADA	3,512	0.08
OTHER	2,030	0.05
TOTAL	4,669,628	100.00

1981 (JANUARY THROUGH JUNE)

COUNTRY OF ORIGIN	QUANTITY (METR. TONS)	PERCENTAGE SHARE
UNITED STATES	901,340	42.54
UNITED KI GDOM	227,140	10.72
POLAND	688,150	32.48
SWEDEN	126	0
SOVIET UNION	293,381	13.84
CANADA	0	0
OTHER	8,434	.42
TOTAL	2,118,580	100.00

(SOURCE: STATISTICAL OFFICE OF THE FINNISH BOARD OF CUSTOMS)

NO FINNISH COAL OFFICIALS WILL BE IN COPENHAGEN TO MEET WITH MR. SINDELAR. HOWEVER, THE FOLLOWING OFFICIALS AND COAL PURCHASING EXECUTIVES ARE NOMINATED BY THE POST AS POTENTIAL INVITEES TO THE HEARINGS ON US COAL EXPORTS:

(A) MR. LASSE TERHO, MANAGING DIRECTOR
SUOMEN SATAMALIITTO (FINNISH PORT ASSOCIATION)
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SF-00100 HELSINKI 10
PHONE: 90/490 269
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UNCLASSIFIED
Department of State

INCOMING
TELEGRAM

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ACTION H-03

INFO OCT-01 ADS-00 EUR-08 SS-15 EB-04 NSC-06 /037 W
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P R 111353Z AUG 81
FM AMEMBASSY HELSINKI
TO SECSTATE WASHDC PRIORITY 7720
INFO AMEMBASSY COPENHAGEN

UNCLAS SECTION 2 OF 2 HELSINKI 4095

FOR EB/IEP-WITTING

CORRECTED COPY (FOR SLUG LINE)
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WU 89-2724

December 7, 1981

United States Senate
Subcommittee on Energy
and Mineral Resources
Mr. Roger A. Sindelar
Dirksen Senate Office Building
Washington, D.C. 20510

Dear Mr. Sindelar:

I enclose my statement to the Committee at the hearing on America's Role in the World Coal Export Market, November 10, 1981.

I would like to ask you to replace the earlier preliminary statement by the present one dated 11-24-81.

Sincerely yours,

Nils Starfelt
Counselor,
Science and Technology

NS/lc
encl.

11-24-81

Senate Subcommittee on Energy and Mineral Resources Hearing, November 10, 1981.

Use of Coal in Sweden

Nils Starfelt
Counselor
Science & Technology
Swedish Embassy
600 New Hampshire Ave., N.W.
Washington, D.C. 20037

As the use of steam coal in Sweden is minimal I can at best give some background information to be used in making forecasts concerning Sweden as a future market for US steam coal. The energy use in Sweden in 1979 is shown in fig. 1. Fig. 2 shows the energy supply the same year. In the twelve-months period ending June 1981, the electricity production was:

Hydro	58%
Nuclear	39%
Fuels	3%

Virtually no oil or coal is produced in Sweden and there is very little hope that this situation will change.

From what I have presented so far it is obvious that:

1. We are very heavily dependent on imported oil.
2. The oil is used to a great extent for the heating of buildings and for industry.
3. The transport sector is less dominating than in USA.
4. We use very little fuel for electricity production.

In the aftermath of the TMI-accident a referendum on nuclear power was held in Sweden. The outcome was that we should complete and use the 12 reactors which were in operation, under construction or in an advanced stage of planning. We have now 9 reactors in use. Nuclear power should be replaced by other energy sources as soon as possible, which should be interpreted to be sometime between the years 2000 and 2020.

Thus we have a great need of replacing oil for the heating of buildings and for use in industry but not for electricity production.

Fig 3 shows how the use of coal has developed during the last 50 years. In 1977, 0.4 million tons were steam coal and 2.3 million was metallurgical coal. Since 1955 we have in fact lost the tradition and the technology of using steam coal.

The government is now supporting the re-introduction of coal and we are counting on getting back to the 1950 level i.e. 6M tons around 1990.

There are two main problems connected with increased use of coal in Sweden:
1) The environmental impact
2) The supply of coal.

Acidification is the main concern. We have 12 000 dead lakes in Sweden and the number is growing. We know that it is not a simple problem. Swedish bed rock is mainly solid granite with very little lime stone to counteract the acidification. Changing farming practices has an influence on the acidity of soil and water. Furthermore, 82% of the 480 000 tons of sulphur deposited on Sweden comes from abroad, mainly from Western Europe. Even a large power plant, eg 4x600 MW el, burning coal of 0.8% sulphur content would not increase the deposition of sulphur by more than a factor of two over a small area close to the plant and much less at larger distances.

In spite of the obvious difficulties we are making an optimistic approach to the environmental problem trying hard to find means of improving the situation. In fact, when we reintroduce coal we will try to do that in such a way that we improve the environment, not just avoid deterioration.

At present we have a limit of 1.0% sulphur in the oil used in southern Sweden. The rule will be extended to cover the main part of the country in 1984. This rule is based on a law passed by parliament in 1976.

The present policy for coal burning plants is to permit an emission of not more than 2100 ton of sulphur per year from larger plants and restrict small users to burning coal containing less than 0.8% sulphur. In recent cases where the cities of Södertälje and Västerås have been granted permission to build coal-fired district heating plants the government has required that the plants shall use flue gas scrubbers.

At present the government is studing the possibility of requiring a maximum of 0.6% sulphur in the coal used in Sweden. This might of course reduce the interest in exporting coal from eastern US to Sweden. Furthermore, a reduction of the maximum emission of sulphur from 2100 ton per year to 1600 is planned. These new rules would be valid from the end of the 1980:s and the aim would be to reduce the emissions further during the 1990:s.

I will end by mentioning one further problem. For some reason Swedes tend to over-emphasize the problems with USA as a coal exporter. The port problem, the mine strikes and your own energy concerns are mentioned in this context.

What we need is of course information on new environmentally acceptable technologies, on the availability of low-sulphur coal for export, and on the reliable long-term policy of the US.

Fig. 1

Energy use in 1979

408 TWh

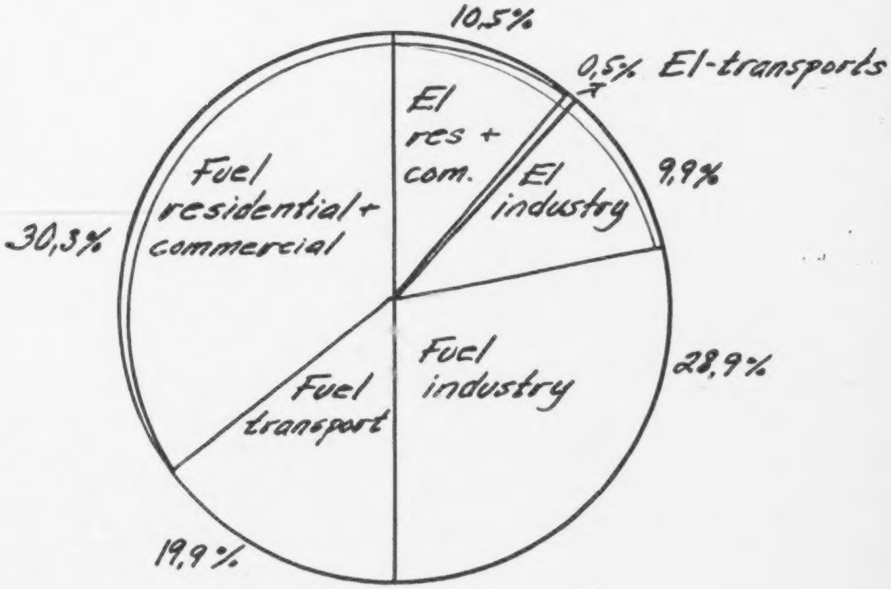

Fig. 2

Energy supply in 1979

437 TWh

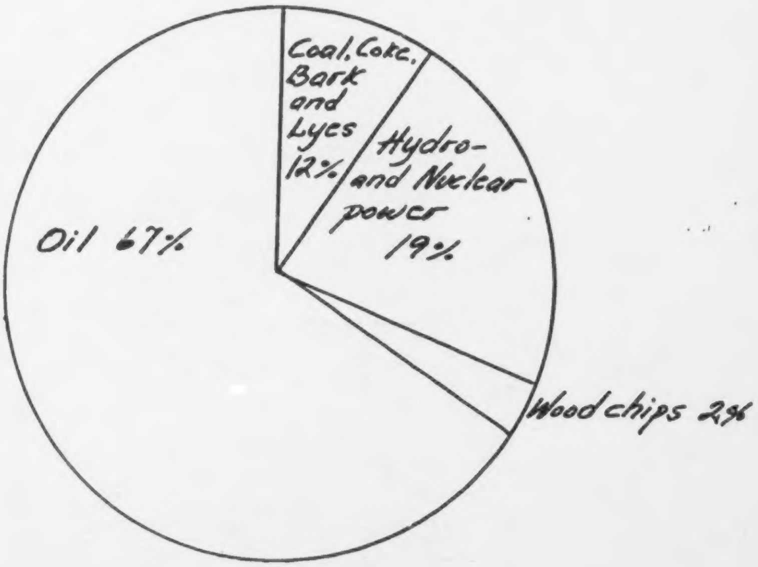

Fig. 3

Coal use

Year	ton.10^6
1930	7
1950	6
1970	2,9
1979	2,7

ELKRAFT

Power Company Ltd., Copenhagen

Partners:

IFV Power Company, Copenhagen (IFV)

The Municipality of Copenhagen (KK)

South East Sealand Electricity Company Ltd. SEAS

Objectives and Tasks:

General

ELKRAFT provides for supply of electricity to the partners in a manner equally satisfactory and dependable to all partners.

ELKRAFT endeavours to implement the required operation and expansion of power generating stations and transmission systems in an overall optimal manner to the partners, always observing authority regulations and keeping other requirements of society in mind.

Operation

ELKRAFT has available the existing power transmission systems and power generating plants belonging to the partners. Operation is effected on ELKRAFT's account.

ELKRAFT plans system operation, paying due regard to providing conditions for dependable operation of the partners' combined heat and power plants.

ELKRAFT is responsible for the co-operation with the Swedish power companies and the Østkraft power utility in Bornholm.

ELKRAFT settles the partners' power consumption on the basis of uniform cost prices.

Expansion

ELKRAFT is responsible for the co-ordinated expansion planning.

ELKRAFT is in charge of planning, design, construction, financing, and operation of new common plants (power generating units and primary transmission lines for electric power and possibly district heating in ELKRAFT's area).

Profit and Loss Account (1.1.-31.12. 80)	million dkr.	%
Depreciation	65.1	2.9
Administration etc. (incl. interest)	55.3	2.4
Purchase of power from partners	606.8	26.6
Purchase of energy from partners	1,374.6	60.4
Purchase of energy from Sweden	175.3	7.7
Total expenses	2,277.1	100.0
Fixed payment from partners	724.3	31.8
Sale of energy to partners	1,468.3	64.5
Sale of energy to Sweden	68.9	3.0
Sale of energy to Østkraft	15.6	0.7
Total income	2,277.1	100.0

Balance Sheet as of 31.12. 80		
Current assets	54.6	34.7
Fixed assets	102.9	65.3
Total assets	157.5	100.0
Short-term liabilities	55.8	35.4
Long-term liabilities	33.6	21.3
Reserves	65.3	41.5
Net capital	2.8	1.8
Total liabilities and net capital	157.5	100.0

Transmission Plant owned by ELKRAFT

¾ km	400 kV cable link (4 parallel single conductor cables)
57 km	400 kV overhead lines
26 km	132 kV land and marine-cable (two 3-conductor cables)
75 km	132 kV overhead lines
one	400/132 kV substation, including: two 350 MVA 400/132 kV transformers two 63 MVAr 132 kV reactors
one	400 kV connecting station
one	132 kV connecting station

Power Stations available for ELKRAFT		MW net	%
IFV		1,700	59.3
Asnæs Power Station....	760		
Kyndby Power Station...	940		
KK		568	19.8
Amager Power Station...	256		
H.C. Ørsted Power Station	181		
Svanemølle Power Station	131		
SEAS		598	20.9
Masnedø Power Station .	185		
Stigsnæs Power Station .	413		
Total available capacity..		2,866	100.0

Energy procured (GWh)	1980	1979
Net-production at the partners' power stations......	10,535	9,391
Imported from Sweden.......	873	1,170
Total procured energy........	11,408	11,181
Energy supplied (GWh)		
To the partners	10,590	10,676
To Østkraft....................	70	–
To Sweden......................	409	225
Losses........................	339	280
Total supplied energy.........	11,408	11,181
Maximum load		
The ELKRAFT area (MW sent out)	2,198	2,277
Fuel consumption		
at the partners' power stations		
Coal (million metric ton)......	3.8	2.7
Oil (million metric ton)........	0.4	0.8

ELKRAFT Power Company Ltd., Copenhagen

5, Lautruphøj, DK-2750 Ballerup. Cables: ELPOWER, Copenhagen. Telex: 35158 ek dk. Postal cheque service No. 9 34 79 09

Mr. Roger Sindelar
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U.S.A.

Telephone
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Your ref.	Our ref.	Letter No.	Date
	hej.see		14th December, 1981

Dear Sir,

Re: The Subcommittee on Energy and Mineral Resources

Referring to Mr. John W. Warner's telex of 17th November, 1981 for my attention you will realize that unfortunately I could not participate in the hearing in November on "America's role in the world coal export market".

However, I am pleased to comply with your wish to send a written statement which I am enclosing.

We have divided our comments in two parts,

1. covering more general remarks about the ELKRAFT organization, and
2. some particulars to which we attach value about America's role as a coal supplier.

I trust that our remarks will be of interest to you, and we should very much welcome your comments.

Yours sincerely,

ELKRAFT Power Company Ltd.

K. Bograd.

Kai Bograd

Enclosures

Please state »Our ref.« and »Letter No.« at any application. Please address correspondence to the Company, not to individuals.

2806-4. BRE4. 3.udg.

ELKRAFT
hej.gli

11.12.81

Hearing on America's role in the world coal export market

The ELKRAFT Organization

1. The ELKRAFT Power Company Ltd., Copenhagen, is owned by the following partners:

   IFV Power Company, Copenhagen
   Copenhagen Lighting Department (the municipality of Copenhagen)
   South East Sealand Electricity Company Ltd. SEAS

2. The ELKRAFT area is comprising the eastern part of Denmark. Furthermore cooperation is established with the Swedish power companies and the Østkraft power utility in Bornholm.

   The net installed capacity is approx. 3,500 MW made up of 7 plants.

3. The ELKRAFT Fuel Procurement Department was formed at the beginning of 1981, and this organization is responsible for all coal and oil purchases, freight arrangements, market research, and communication on energy matters with official bodies.

4. The consumption of coal is fluctuating between 3.5 and 4.0 mill. t p.a. depending on the import/export of power between Denmark and Sweden, and the electricity growth rate will only be moderate over the next years.

5. The eastern countries used to be the main suppliers, but this pattern has changed drastically over the last few years. The United States will most probably play the role as the largest supplier with a market share of 25-35 %, followed by South Africa, United Kingdom, Canada, Australia, Poland, and Russia. At the end of the eighties Columbia might become an important supplier, if the planned projects are realized.

6. The purchasing policy is based on the following factors:

6.1 Full global market knowledge.

6.2 An percentage covered by long term contracts plus optional quantities.

6.3 Severe criteria for selecting potential suppliers concentrating on major companies without any intermediaries

6.4 The chosen suppliers must be of such a standing that within their number full flexibility as to fluctuations of consumption and fulfilment of future demands is obtained.

7. We assess that ample export volumes will be available in the coming years. Furthermore we have confidence in the value of our established relationships.

8. The ELKRAFT group has two deep sea ports, viz. at the Stigsnæs power station belonging to SEAS and at the Asnæs power station belonging to IFV.

The Stigsnæs port can accomodate vessels up to 120,000 dwt. fully laden and the Asnæs port part loaded vessels up to approx. 150,000 dwt. The big vessels discharge at the two ports in combination. Panamax size vessels discharge at either port. From 1983 the Stigsnæs port will be dredged* for 170-175,000 dwt. vessels coinciding with the maximum capacity in the loading ports.

9. We trust that our planned port capacity will suffice to benefit in a maximum way from the shipping opportunities even in the long run in view of the consumption to be covered.

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* to 18 m depth

Particulars on America's role as a coal supplier

1. In connection with the substantially increased coal consumption over the last few years and a wish to diversify the purchases it was logical to include the United States as a co-supplier.

   Within the ELKRAFT group of companies a profound knowledge of the American exporters and producing companies had been built up, and selected companies had been called upon. At the planning stage for new supplies our criteria were extended and adapted to the American market conditions.

   It is worth while mentioning that this procedure was used for two long term contracts over 10 years with a basic quantity of 300,000 t plus an optional quantity of 150,000 to p.a. per supplier. These contracts were made prior to any knowledge about disrupture of the Polish supplies. After the dramatic change of the Polish ability to deliver series of spot purchases were made in the United States, and the United Kingdom came also strongly into the picture as a major exporter. In actual figures it meant that ELKRAFT bought more than 2 mill. t of Steam coal in the United States in 1981.

2. The difficulties which the change of the market situation and the massive international orientation towards the United States caused there are well known. However, we did not expect that they would develop to such an extent when we planned our purchases. The gained experience has been of a varied character and very costly.

   Many of the performing problems were caused by lack of close cooperation between the Port authorities (railroad companies) and the exporters to gear the quantities to the capacity of the ports including freeze treatment of the coal.

   Another set of problems is big discrepancies of heating value measured in the laboratories of the loading port and of the discharge port owing to different sampling systems. This calamity has in many instances shaken the confidence in the American supplies with the European buyers.

3. Generally speaking we are welcoming the initiatives made in the United States to plan new loading facilities, and we are content that our long term suppliers are involved in such ventures. At the same time we appreciated the preregistration systems created by the railroad companies to diminish the demurrage costs in the ports.

4. As recommendations to American suppliers for the future could be mentioned that similar conditions as the most efficient ones in the competing overseas countries must be achieved, i.e. no demurrage, smooth performance, consistent quality, automatic sampling, and this can only take place if the export efforts are organized in a little more orderly way including close cooperation between railroads and exporters besides their export associations. Nobody has an interest in a confused market development, and at any rate there will only be room for experienced companies of high standard, and only these ones will survive.

Dredging of certain ports might be advisable for instance up to 55 feet if same can be made at reasonable costs, but there is no doubt that the modernisation of the railroads, the organization of ports, the sizing and the construction of the loading facilities are of even more importance.

Consequently we do not think that large vessels of 170,000 dwt. or even larger will ever solve the problems of American coal exports or be indispensable for competition reasons. We feel sure that the Panamax size vessels will to a great extent prove to be very economical, and if above conditions are obtained in a few ports the size of 100-130,000 dwt. vessels will be fully sufficient to maximise the American export opportunities.

TESTIMONY OF
U. S. SENATOR HOWELL HEFLIN (D-AL)
BEFORE THE
ENERGY AND MINERAL RESOURCES SUBCOMMITTEE
OF THE
COMMITTEE ON ENERGY AND NATURAL RESOURCES

MR. CHAIRMAN:

I AM DELIGHTED TO HAVE THE OPPORTUNITY TO SUBMIT WRITTEN TESTIMONY FOR THE BEGINNING OF A SERIES OF OVERSIGHT HEARINGS ON "AMERICA'S ROLE IN THE WORLD COAL EXPORT MARKET."

MR. CHAIRMAN, IT IS UNDISPUTED THAT DURING THE PAST YEARS THE OVERSEAS DEMAND FOR AMERICAN COAL -- METALLURGICAL AND STEAM -- HAS INCREASED VERY SIGNIFICANTLY. STRIKES IN AUSTRALIA AND POLAND AND CONTINUING PROBLEMS IN SOUTH AFRICA HAVE HAD A VERY POSITIVE AND PROFOUND IMPACT UPON THE DEMAND FOR AMERICAN COAL EXPORTS. UNSTABLE AND UNRELIABLE MIDEASTERN OIL PLUS SKYROCKETING OPEC OIL PRICES HAVE PLAYED AN EQUALLY IMPORTANT ROLE IN BOOSTING OUR COAL EXPORT MARKET.

LAST YEAR WE EXPORTED OVERSEAS SOME 70 MILLION TONS OF COAL. IT IS MY UNDERSTANDING THAT THIS WAS AN ALL-TIME RECORD. WE EXPORTED APPROXIMATELY 13 MILLION TONS OF STEAM COAL (10½ MILLION MORE THAN IN 1979), AND 57 MILLION TONS OF METALLURGICAL COAL (13 MILLION MORE THAN IN 1979).

. THIS YEAR OUR OVERSEAS COAL EXPORTS ARE EXPECTED TO DECLINE -- PARTIALLY BECAUSE OF COAL PORT CONGESTION AND, IN THE CASE OF METALLURGICAL COAL, PARTIALLY BECAUSE OF IMPROVED CONDITIONS IN AUSTRALIA, THE UNPREDICTABLE AVAILABILITY OF COAL IN POLAND, AND SHARPLY LOWER STEEL PRODUCTION LEVELS IN JAPAN AND IN THE EUROPEAN ECONOMIC COMMUNITY. FORTUNATELY, STEAM COAL DEMAND WILL INCREASE BY APPROXIMATELY 5 MILLION TONS, PRIMARILY BECAUSE OF A CONTINUING SHIFT BY EUROPEAN COUNTRIES FROM OIL TO COAL.

MR. CHAIRMAN, WITH A STEADY INCREASE IN DEMAND FOR AMERICAN STEAM COAL BY EUROPEAN COUNTRIES, WE CAN BECOME THE SAUDI ARABIA OF STEAM COAL EXPORTS AND HELP OUR EUROPEAN FRIENDS REDUCE THEIR EXCESSIVE RELIANCE ON IMPORTED OIL.

MR. PRESIDENT, COAL IS THE MOST LIKELY ECONOMIC ENERGY SOURCE OF THE FUTURE. IT CAN AND, IN FACT, OUGHT TO SUPPLY A SUBSTANTIALLY LARGER PORTION OF THE WORLD'S ENERGY NEEDS THAN IT HAS PREVIOUSLY.

HISTORICALLY, THE U. S. HAS ALWAYS BEEN THE LARGEST EXPORTER OF METALLURGICAL COAL. YET, THE INTERNATIONAL ENERGY AGENCY (IEA) HAS PREDICTED THAT THE U. S. WILL HAVE TO EXPORT APPROXIMATELY 100 MILLION TONS OF STEAM COAL BY 1980 AND 300 MILLION TONS BY 2000 TO MEET FREE WORLD ENERGY NEEDS.

WHILE THE U. S. WILL EXPORT APPROXIMATELY 58 MILLION TONS OF COAL THIS YEAR, STATISTICS SHOW THAT WE COULD BE PRODUCING AT LEAST AN ADDITIONAL 100 MILLION TONS OF COAL PER YEAR IF WE HAD THE MARKET AND CAPABILITY TO SHIP IT. THE MARKET, IN MY JUDGMENT, IS THERE. MOREOVER, STATISTICS SHOW THAT WE HAVE APPROXIMATELY 1.7 TRILLION TONS OF COAL RESERVES.

THE PROBLEM, MR. CHAIRMAN, STEMS FROM PORT CONGESTION, POOR LOADING FACILITIES, AND INEFFECTIVE TRANSPORTATION. OUR EXISTING PORTS ARE NOT PHYSICALLY CAPABLE OF HANDLING THE RISE IN COAL EXPORT DEMANDS. MANY SHIPS ARE WAITING AT SOME OF OUR EAST COAST PORTS FOR AS LONG AS A MONTH. MR. CHAIRMAN, THIS IS PERHAPS THE MOST CONSTRAINING PROBLEM THAT OUR PORT CAPACITY FACES RIGHT NOW. ONE QUICK WAY TO ALLEVIATE THIS CONGESTION ON THE EAST COAST IS TO IMPROVE AND EXPAND SOME OF THE EXISTING GULF COAST PORTS AND DIVERT SOME OF THESE COAL SHIPMENTS TO THEM. WE ALSO NEED NEW PORTS AND PIERS WITH MODERN LOADING AND GROUND STORAGE FACILITIES. MOREOVER, WE NEED TO DREDGE HARBORS TO THE NECESSARY DEPTHS TO ACCOMMODATE LARGER VESSELS.

S. 1389, THE NATIONAL PORT AND NAVIGATION IMPROVEMENT ACT OF 1981, OF WHICH I AM AN ORIGINAL COSPONSOR, WOULD PROVIDE THE MECHANISMS TO RELIEVE THE PORT CONGESTION HERETOFORE DESCRIBED IN AN EXPEDITIOUS MANNER. IT WOULD AUTHORIZE ALL OF OUR NATION'S PORTS WHICH HAVE NAVIGATIONAL PROJECTS DESIGNATED AS ESSENTIAL TO THE NATIONAL INTEREST TO OBTAIN PORT AND NAVIGATIONAL IMPROVEMENTS, PURSUANT TO AN EXPEDITED PROCESS.

MR. CHAIRMAN, THE MCDUFFY TERMINAL IN MOBILE, ALABAMA, IS SUCH A PORT. IT IS A PRIME CANDIDATE FOR NAVIGATION IMPROVEMENTS. IN FACT, MR. CHAIRMAN, THE SECRETARY OF THE ARMY, ACTING BY AND THROUGH THE CHIEF OF ENGINEERS, HAS ALREADY CONDUCTED A STUDY ON NAVIGATION IMPROVEMENTS OF THE MOBILE HARBOR.

The Corps of Engineers have found that improvements of the existing Mobile Harbor project are warranted to provide channel depths and width necessary to meet the expected harbor growth. Of the estimated total first cost of the navigation improvement, $51,678,000 of the $392,028,000 is non-federal money. While no final action has been taken to date, it is clear that the State of Alabama is serious about its commitment to help reduce coal port congestion.

You see, Mr. Chairman, it is of critical importance that the Mobile Harbor be deepened to at least 55 feet so that larger vessels can be used to handle the significant increase in navigation traffic when the Tennessee-Tombigbee Waterway project is completed. The Tenn-Tom, which will connect the Tennessee River with the Tombigbee River, will connect about 16,000 miles of existing waterways in mid-America with the Port of Mobile.

Mr. Chairman, the State of Alabama will be playing a vital role in domestic and world coal markets for a long time to come. One-tenth of the United States coal reserves are in Alabama, and the life expectancy of this reserve is approximately 1,000 years. In the last fiscal year, the Alabama state docks exported some 5 million tons of coal. With the expansion of certain coal facilities there this fiscal year, Alabama plans to increase its coal exports to approximately 8 million tons. Further increases should be unlimited with the completion of the Teneessee-Tombigbee Waterway and dredging of the Port of Mobile to 55 feet.

Mr. Chairman, if the United States is to become the Saudi Arabia of steam coal exports, it will be imperative that we develop our port capacities to move the coal to its overseas market expeditiously and efficiently. The market is there and the challenge is clear. I pledge my support to help meet it in every way that I properly can.

Thank you.

Visit of Mr. Roger SINDELAIR

Assistant to the Senator John WARNER

General report of the Coal traffic
for Belgium

Overlook of the Ports situation
in Belgium

With the forecast of growth of imports in Europe not only for local consumption but also for transhipment to the natural hinterland (being West-Germany, Holland, France and Switzerland), Antwerp is becoming an important distribution coal center in the European Community.

- 80.000 people are directly involved in the harbour trade
- 100.000.000 people are living in a zone of 350 kilometers surrounding Antwerp

-900 km railway net in the harbour is perfectly connected with the international railway traffic, more than 100 trains a day are transporting aal sorts of goods to surrounding countries of the Community.

- large waterways are providing easy traffic for barges to the hinterland (Rhine, Mosel & others)
- Antwerp's strategic situation in Europe was already recognized and highly appreciated by the Allied Forces during World War II.

THE HANDLING OF COAL IN THE PORT OF ANTWERP

A. Terminals

For the handling and storage of coal there are 4 specialised companies in the Port :

BELGIAN BUNKERING & STEVEDORING CY	(Kempische Dock - Asia Dock)
SOCIETE GENERALE DES MINERAIS	(Canaldock B 1)
STOCATRA	(Hansa Dock)
VLOEBERGHS	(Leopold dock)

The terminals are equipped with 24 loading bridges and cranes, 12 of which are loading bridges with capacities of 25 tons.
The deepest berths have draughts up to 45 '.
Storage facilities extend on approximately 80 acres.
Adapted installations for washing, crushing, sorting and for filling of bags are available.

At the new Delwaide dock, which Will be partly operational at the end of 1981, a new coal- and ore terminal will be built. Two loading bridges with capacities of 50 tons each will be erected on a quay with a length of 1 km (first phase) whereas an other 600 m of quay will be reserved for coasters and barges. The Terminal will be equipped with a complete transport-installation for the storage on quay aprons with depths of 200 m, to be extended later on to 600 m.

At this terminal it will be possible to receive ships with draughs up to 48 '

B. Ways of communication

Ships arrive at the port via the river Scheldt, which has a maximum draught of 45 ' by high tide. Over the next few years dredging works will be carried out in order to increase this value up to 48 '. At the same time the extension of a radar chain, which already comprizes 3 radar stations, is going on ; after the completion of the final phase it will control the ships' traffic on the whole length of the river.

Furthermore tenders have been invited for the construction of a new lock, next to the present Zandvliet lock, which as the largest in the world (500 m long and 68 m wide) will guarantee increased accessibility to the port.

Antwerp also disposes of excellent links with the hinterland. With all terminals there are railway connections. Via a dense network of rivers and canals, barges reach the important industrial areas. The port area is also directly linked to the European highway net.

C. Statistical data

Maritime coal traffic in the port of Antwerp in metric tons

Years	Unloaded	Loaded	Total
1978	2.555.409	517.857	3.073.266
1979	4.527.131	699.434	5.226.565
1980 *	5.861.000	1.110.000	6.971.000

* figures of a 10 months basis

Appendix 1 : Description of transhipment and storage facilities

D. Statistics of the coal traffic in Belgium for 1980 compared with 1979

	1980	1979	Diff in %
Consumption at the mines	11.000	9000	+ 22,2
Deliveries to miners	24.000	54.000	- 55,6
Power stations at the mines	345.000	365.000	- 5,5
Coking plants	7.948.000	8.463.000	- 6,1
Ovoid plants	74.000	145.000	- 49
Power stations	5.194.000	4.232.000	+ 22,7
Railroads	2.000	4.000	- 50
Steel industry	79.000	121.000	- 34,7
Other industries	962.000	668.000	+ 44
Households	1.307.000	1.553.000	- 15,8
	15,946.000	15.614.000	+ 2,1

Coking plants :	1980	1979	Diff in %
Belgian coal	3.891.000	3.771.000	+ 3,2
Imported	4.057.000	4.692.000	- 13,5
			- 6,1
Power plants :			
Belgian coal	1.439.000	1.592.000	- 9,6
Imported	3.755.000	2.640.000	+ 42,2
			+ 22,7
Households :			
Belgian coal	155.000	173.000	- 10,4
Imported	1.152.000	1.380.000	- 16,5
			- 15,8

	1980	1979	Diff in %
Imports CECA countries			
West-Germany	2.345.000	3.417.000	- 31,4
France	37.000	63.000	- 41,3
The netherlands	202.000	-	
United Kingdom	217.000	242.000	- 10,3
	2.801.000	3.722.000	- 24,7
Imports THIRD countries			
United States	4.155.000	2.541.000	+ 63.5
Poland	584.000	689.000	- 15,2
Australia	257.000	275.000	- 6,6
Soviet Union	216.000	364.000	- 40,7
South-Africa	2.048.000	1.887.000	+ 8,5
Canada	-	56.000	- 100
Various	78.000	88.000	- 11,4
	7.338.000	5.900.000	+ 24,4
Total :	10.139.000	9.622.000	+ 5,4

Other Belgian ports

Zeebrugge : is planning new developments and will be able to accomodate vessels of 125.000 tons in the coming years

Ghent : the actual traffic is of about 1.400.000 tons mainly under influence of the steel industry SIDMAR.

Serious studies are now undertaken to develop a new terminal able to carry 3 to 4.000.000 tons of coal per year. This project is mainly dependable of the Terneuzen lock meaning actually a restriction in the size of the vessels to Panamax types. However, the study of another canal with locks of 125.000 tons DWT is now under way.

Belgian Coal Importers

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chausée de la Hulpe 181
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3. Engbert Reudink
Directeur
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4. Jean Stoop
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The enclosed report "Dutch Energy: Its Situation and Future Outlook," is submitted as a portion of the Embassy's Reporting Plan.

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I INTRODUCTION

Energy consumption in the Netherlands has undergone substantial changes over the past decade. Although the country averaged a 5.3 percent growth in GNP during the period 1968-73, total energy consumption during the same period rose an average of 10 percent annually. This reflected not only increased use of low-cost energy, but a growth in energy intensive and petroleum-based industries, among which were refineries and petrochemical plants. Two sharp rises in crude oil prices, one in 1973-74 which brought the price of Arabian crude from US $3 bbl to $11.65 bbl, and the most recent price hike which pushed crude prices well beyond the $30 bbl level, drastically altered pre-1973 energy growth trends. The price factors caused consumption of primary energy fuels to drop by 3.3 percent between 1973 and 1975, while total primary energy consumption in 1980 fell 4 percent below its 1979 level. As a result, the average growth rate in consumption of energy in the Netherlands was reduced during the past decade to 1 percent annually, in contrast with an average 2.1 percent GNP growth during the same period.

Associated with the reversal in the trend of increasing energy use, the overall consumption pattern also changed from one dominated by an explosive rise in the use of natural gas (from 1 percent ot the energy package in 1963 to 50 percent in 1973). This change was primarily at the expense of coal, the use of which had fallen to less than 4 percent of total energy consumption by 1975. The oil crisis of 1973 thus prompted authorities to put a brake on energy consumption in general and to adopt more selective measures for the allocation of domestic gas resources. Contrary to IEA recommendations, this forced industry and power stations to fall back to oil (up from 37.9 percent in 1975 to 46 percent in 1980) and coal (from 3.7 percent to 5.7 percent in the same period).

In assuming lower (down 1.7 percent) consumption by households and in the public sector, but anticipating an increase in use by industry (up 6.1 percent) and power stations (up 9.2 percent) official CPB forecasts show total primary energy consumption between 1980 and 1985 are expected to grow by 1.1 percent annually, in contrast to an estimated annual GNP growth rate of 1.5 percent projected for that period.

II DEVELOPMENT OF AN ENERGY POLICY

The two petroleum crises and the concern for conserving domestic gas reserves prompted the GON in the 1970's to develop a new energy policy to support medium and long term goals with regard to the production, distribution and consumption of assorted energy fuels. The GON's policy is contained in three separate sections of a white paper on energy, which, broken down, are 1) an in depth review of Dutch energy policy; 2) the role of coal in the energy supply; and 3) allocation of primary energy carriers (including nuclear) to power applications.
A brief summary of each of the three chapters follows:
1. General Energy Policy. A review of the energy policy in general terms, this section introduces discussion of the need for a conservation program and seeks to target a 30 percent improvement in large scale energy efficiency by the year 2000 and a reduction by 50 percent in Dutch oil dependency. Compared with 1977, expected savings (in percentages) by sector are projected as follows:

	1985	1990	2000
Domestic Heating	20	33	45
Other domestic uses	5	10	20
Utilities and Public buildings	15	25	35
Transportation Fuel	10	15	25
Industry	10	15	30

2. The Coal Memorandum. The second section of the energy paper became more specific by recommending to increase the share of coal in the overall energy package from today's low of 1.6 percent to 20 percent by the year 2000. Coal imports will be increased from 1.5 million tons annually (excluding coking coal) to 26 million tons by the turn of the century. To reach this goal, coal use in public power generation is to be increased to reach 40 percent of energy requirements for this service by the end of the century. Simultaneously, the share of natural gas and oil is to decline from its current level of 80 percent to 20 percent of total energy consumption. The remaining 40 percent could be via the politically sensitive nuclear route, but if that is not possible, greater dependence on coal is recommended.

3. The Allocation of Fuel for Power Plants. This third and final section of the paper discusses the role of nuclear energy in the Netherlands. It proposes construction of three small nuclear power plants and provides fundamental facts which are to serve as the basis for a two-year public debate over the nuclear power issue.

The paper favors the expansion of nuclear energy as an alternative to dwindling conventional energy fuels, and recommends the construction of three new 1000 Mwe power plants, in addition to two small existing plants. Because no major political party wished to take sides on the sensitive nuclear issue, it was decided that it should be thrown open to public debate -- the results of which are to be used as guidance for Parliament to make a decision on the future use of nuclear energy.

Because of the varied and changing roles of energy fuels in the Netherlands*, we have chosen to break down the various energy carriers according to importance: gas, oil, coal, electricity, nuclear and alternative sources. Tables I and II, the Netherlands Energy Balance for 1980 and 1985, are to be used concurrently when reviewing each segment as a reference tool. In some instances, we have chosen to comment on the Embassy's views on certain aspects of each fuel as it relates to the total energy policy of the Netherlands.

* (identified as fuels to separate them from oil and gas used as raw materials for chemicals, petrochemicals and other industrial products.)
able II

III NATURAL GAS

Consumption

Still covering close to half of total primary energy consumption, natural gas represents by far the most important source of Dutch energy for household use, power generation and industrial purposes. Following the discovery in 1959 of large domestic natural gas deposits, the share of natural gas in Dutch energy production has seen a dramatic rise from a low of one percent during the early sixties to more than 58 percent, or 36.1 MTOE (million tons of oil equivalent), by 1975. In that year natural gas accounted for over 65 percent (10.8 MTOE) of total energy consumption by households, close to 43 percent (14.7 MTOE) of the energy needs in industry, and 91 percent (10.6 MTOE) of fuel requirements for power generation. In the interim a revision of the GON general energy policy, reflecting post (1973) energy crisis conditions, provided for a drastic reduction in the flow of natural gas for industrial heating and power generation, assigning highest priority to small consumers (households) and select industrial applications. The GON's natural gas policy consequently reduced natural gas for electricity production by 57 percent to 4.7 MTOE in 1980 while stabilizing household and industrial consumption of gas at 11.5 and 14.9 MTOE respectively. As a result, total gas consumption in 1980 dropped to 31.1 MTOE or down 13.8 percent from levels reported in 1975. The sole Dutch natural gas distributor, Nederlandse Gasunie NV, has confirmed that energy saving, in particular by households, is bringing domestic natural gas consumption further down in 1981 and is expected to continue. As a consequence, medium-term forecasts see total natural gas domestic consumption in 1985 stabilizing at 32.2 MTOE.

Supply

Dutch domestic consumption of natural gas (roughly 40 billion cubic meters) is covered almost entirely by indigenous production. In addition the Dutch supply more than one-third (roughly 47 billion cubic meters) of the natural gas needs of the EEC under long-term export contracts with Germany, France, Belgium, Italy and Switzerland.

The bulk, or 71 percent, of total natural gas output (98.8 billion cubic meters in 1980), originates from the vast land-based deposits at Groningen in the north of the country. Another 15.6 percent comes from a number of considerably smaller deposits elsewhere on the mainland. The remainder is covered by gas from the Dutch sector of the North Sea's Continental Shelf (13.4 percent). (North Sea gas, however, has a higher BTU/calorie ratio.) The share of North Sea-origin natural gas in the total gas mix has more than doubled, from 6.3 billion cubic meters or 6.8 percent in 1978, to over 13 percent last year. New discoveries are gradually increasing the volume of North Sea gas produced, prompting official sources to venture that the total output of the North Sea could eventually rise to 20 billion cubic meters annually.

Table III Dutch Natural Gas Production
(billion cubic meters at 15 degree C)

Year	Mainland	North Sea	Total
1975	97.1	1.0	98.1
1976	102.0	3.1	105.1
1977	97.7	4.8	102.5
1978	86.1	6.3	92.4
1979	85.4	10.9	96.3
1980	78.2	12.1	90.3

Source: Economics Ministry

Aside from being the world's largest exporter of natural gas, Gasunie is also a zealous seeker of gas imports to extend the life of Dutch reserves. Norwegian gas is already being piped from Ekofisk fields to the Netherlands via Emden in Germany at a rate of 2.5 billion cubic meters annually. In addition, a contract for the delivery of one billion cubic meters of Nigerian origin LNG to start in 1985 is still being negotiated, while substantive talks with the Soviet gas company, Soyudgas Export, could eventually provide annual imports of five billion cubic meters of Siberian gas. Negotiations between Gasunie and Algerian Sonatrach for annual delivery of 6.7 billion cubic meters of LNG have come to a standstill following pricing disputes and a drastic change in the investment policy of the Goverment of Algeria, which postpones indefinitely the construction of the Arzew III liquefaction plant from whence exports to the Netherlands were to originate. If, however, all of the planned contracts were to materialize, natural gas imports by 1985 could reach roughly 15 billion cubic meters or the equivalent of 37 percent of current domestic consumption. Prospects for such developments are presently dim.

Table IV Dutch Natural Gas Imports
(billion cubic meters)

	1980	(Projected) 1985	Percent of Total Imports
Algeria	-	6.7	44.1
Nigeria	-	1.0	6.6
Norway	2.5	2.5	16.4
USSR	-	5.0	32.9
Total	2.5	15.2	100.0

Source: Gasunie, Economics Ministry

Natural Gas Sales and Exports

Due to reduced economic activity and widespread energy conservation, the upward moving exponential curve, which characterized Dutch natural gas sales during most of the past two decades, now flattens out. Gasunie reports that in 1980 the total sales volume of natural gas dropped by 6 percent to 87.3 billion cubic meters. Lower sales volumes are attributed to reduced demand by gas distribution boards (regional distributors) and industry (down 7 and 5 percent respectively), while the Government's fuel re-allocation program has resulted in the volume of gas sold to power plants dropping by 28 percent.

The Netherlands plays a key role as energy supplier for the EC, covering close to 29 percent of the whole community's gross domestic consumption of natural gas. In 1980 the Nederlandse Gasunie NV exported 47.5 billion cubic meters of gas to EC consumers - down 3 percent from the level reported in 1979. Dutch exports of natural gas had peaked in 1976 when 50.6 billion cubic meters of gas were piped to Germany, France, Belgium, Italy and Switzerland. To date approximately 40 percent of total export contract commitments to EEC countries have been delivered, leaving a volume 560 billion cubic meters of gas still to be exported between 1980 and 2004 when most of the contracts will be expired. The EC is the Netherlands only export market for natural gas.

Table V Dutch Natural Gas Sales and Exports
(billion cubic meters at 15 degrees C)

DOMESTIC	1976	1977	1978	1979	1980
Gas Distribution Companies	21.6	21.7	23.6	25.3	23.6
Industry	11.5	11.7	11.4	11.5	11.0
Power Stations	10.6	10.6	9.1	7.2	5.2
Total Domestic Sales	43.7	44.0	44.1	44.0	39.8
EXPORTS					
Germany	21.8	22.7	17.6	19.9	19.1
Belgium	12.0	11.1	10.2	10.4	9.7
France	10.2	9.7	10.0	11.0	10.9
Italy and Switzerland	6.6	6.5	7.2	7.9	7.8
Total Exports	50.6	50.0	45.0	49.2	47.5
Total Sales	94.3	94.0	89.1	93.2	87.3

Source: Nederlandse Gasunie NV

Natural Gas Supply Outlook

Medium and long term strategies for the supply of natural gas in the Netherlands during the next 25 years (1980-2004) are detailed in the annual gas marketing plan of the Nederlandse Gasunie NV. In essence, Gasunie is to provide for distribution of Dutch domestic natural gas (including with domestic reserves those proposed imports from Norway, Algeria and the USSR) in accordance with the GON's selective sales strategy recommendations. These recommendations, embodying an integral part of the government's general energy policy, call for unlimited supplies of gas to the small consumer market (households) and selected industrial applications, while gradually phasing out supplying gas for steam generation, power and exports. Gasunie's sales strategy distinquishes between a) a medium term policy, based on the country's proven reserves (90 percent probability) and b) a long term policy reflecting the distribution until the year 2004 of both proven and unproven (50 percent probability) reserves. The medium term supply strategy provides for controlled distribution until 1984, after which the remaining reserves will be spread over the period to 2004. The long term strategy assumes distribution of total available reserves for the full period until 2004. The total volume of gas required to cover needs under these scenarios amounts to 1,450 billion cubic meters for the medium term strategy, while the long term strategy calls for 1,650 billion cubic meters. At today's proven and unproven reserves, a final drawdown period, varying from 7 to 20 years of domestic consumption at 1980 levels, will be possible after the year 2004, assuming the realization of gas imports from Algeria and the USSR.

Total proven and unproven reserves available to Gasunie as of January 1, 1981 have been estimated at 2,630 billion cubic meters of gas. These include both mainland and North Sea reserves as well as planned imports from Algeria, Nigeria, Norway and the USSR. The growing volume of natural gas imports, supplemented by continuing discovery of new domestic natural gas deposits, contributed to the increase of total reserves during the 1975-1979 period by 330 billion cubic meters or close to the total volume of domestic gas consumed during that same period (460 billion cubic meters).

Table VI Dutch Natural Gas Reserves
(billion cubic meters at 15 degrees C)

Mainland	1,460
North Sea's Continental Shelf	118
Contracted Imports	170
Proven Reserves	1,748
Mainland	493
North Sea's Continental Shelf	180
Planned Imports	217
Unproven Reserves	890
Total Reserves	2,638

Source: Economics Ministry, Gasunie

Comment: Natural gas has become an important economic and a potentially important political force in the Netherlands. The Dutch have become accustomed to a relatively large share - still almost half - of their energy needs being covered by this indigenous resource -- 65 percent for households and close to 40 percent for industry and power sectors. In addition, the Dutch cover almost 23 percent of gross domestic gas consumption in the rest of the EC, with over half of what the Dutch produce annually. At the present rate of consumption, roughly 88 billion cubic meters in 1980, proven and unproven reserves are considered adequate to cover domestic and export commitments for another 25 years.

Dutch energy planners already are concerned how to stretch the life of these reserves beyond the year 2004 and still allow for an interim period to switch to other fuels in the energy package. This goal is to be reached by increasingly selective use of domestic gas while increasing gas imports. For a start, the GON's energy policy is aimed to assure the flow of gas to small consumers and selected industries at the expense of industrial heating and power generating users. But successful implementation of this policy in the long run will eventually require increasing gas imports to substitute for the domestic product. As these import contracts appear more and more dubious, in fact seeming to evaporate as of this writing, there will be growing political pressure to reduce exports of domestic gas to conserve a strategic reserve. Unless alternative sources of gas and/or energy are found, the Dutch public may press the government to limit or renege on existing export contracts to their EC partners in the coming decade.

IV Oil

The rapid growth in the use of natural gas in the Netherlands resulted in the share of oil in domestic energy consumption dropping from 60 percent (24 MTOE) in 1968 to 38 percent (23.6 MTOE) by 1975. This trend has now been reversed, because the most recent energy crisis prompted the GON to impose restrictions on the use of natural gas in industrial heating and power generation, thereby leaving industry no immediate alternative but to turn to oil. Thus by 1980 the share of oil, vis-a-vis gas, again reached 46 percent -- a level of oil consumption last reached in 1973.

Table VII Development of Oil Consumption (1968-85)
(Million tons oil equivalents)

	1968	1973	1975	1980	1985
Total Domestic Consumption	24	29.3	23.6	31.1	31.9
Share (%) in total Domestic Consumption	60	45	37.9	46.4	45.0

Source: Central Planning Bureau (CPB)

The energy balance for 1980 (see Table II) shows that, with 57.6 percent (17.9 MTOE), Dutch industry represents by far the largest consumer of petroleum products, followed by the energy sector (electric power) with 29.6 percent (9.2 MTOE), while the remaining 12.8 percent (4.0 MTOE) is for household use. In comparison to the energy balance of 1975, the largest absolute and relative increase in the consumption of petroleum during the past five years is in the generation of power (up from 16.1 percent to 29.6 percent), reflecting the success of the government's efforts to make power stations switch back to fuel oil and coal. A drop in the relative share of oil from the 1975 level has been reported for both households and industries (from 19.6 percent to 12.9 percent and from 64.3 percent to 57.6 percent respectively). In absolute terms, consumption by households primarily declined (down from 4.6 MTOE to 4.0 MTOE) because of wider use of natural gas for domestic heating.

Table VIII •Dutch Petroleum Consumption According to Major Sectors (MTOE)

	1975	%	1980	%	1985	%
1. Households	4.6	(19.6)	4.0	(12.8)	3.6	(11.29)
2. Industry	15.1	(64.3)	17.9	(57.6)	19.7	(61.76)
3. Energy Sector (incl. power stations)	3.8	(16.1)	9.2	(29.6)	8.6	(26.96)
Totals	23.5	(100%)	31.1	(100%)	31.9	(100%)

Source: Ministry of Economic Affairs

Oil Supply

Indigenous production of crude oil currently accounts for only 3 percent of total domestic oil consumption. Last year the Netherlands imported 71.9 million metric tons (M/MT) of oil and equivalents (including 12.1 million tons of products) but this figure was down 8.5 percent from 1979 when imports were 78.6 M/MT. The bulk of crude imports originate traditionally from Mid-East suppliers (close to 30 M/MT or 59 percent in 1980). Crude imports of roughly 10.8 M/MT or 21.3 percent of imports came from Nigeria, while a current trend shows a drop in purchases originating from the UK (3.8 M/MT or 7.5 percent of imports) and and increase from Norway (1.7 M/MT or 3.4 percent). On the other hand, crude imports from Iran were reduced from 24 M/MT in 1978 to less than 0.8 M/MT last year.

Table IX Dutch Crude Imports by Country of Origin (million MT)

	1979	1980	% Change
Saudi Arabia	17.5	19.2	+ 10.3
Nigeria	12.1	10.8	- 10.7
Kuwait	8.5	5.7	- 32.1
UK	4.4	3.8	- 84.7
Quatar	1.3	2.8	- 13.6
UAE	2.1	1.9	- 16.3
Norway	0.7	1.7	+ 68.4
Others	12.8	4.5	+ 24.0
Total	59.4	50.4	- 15.2

Source: Central Bureau of Statistics

More than half of Dutch refinery output (70 percent in 1980) has been exported, primarily to EEC countries.

Table X Exports of Finished Petroleum Products* By Major Country of Destination (million MT)

	1979	%	1980	%	% Change
Germany	16.7	(38.7)	14.7	(36.0)	- 12.0
Belgium	4.9	(11.3)	4.2	(10.3)	- 14.3
Denmark	2.5	(5.8)	1.1	(2.7)	- 56.0
UK	4.4	(10.2)	3.8	(9.3)	- 13.6
Sweden	1.1	(2.5)	0.7	(1.7)	- 36.3
Nigeria	1.8	(4.2)	1.3	(3.2)	- 27.8
Others	11.8	(27.3)	15.0	+	+ 27.1
Total	43.2	100.0	40.8	100.0	- 5.6

Note:* including crude oil residuals
Source: Central Bureau of Statistics

Oil Output

Medium-term forecasts are that the absolute volume of oil to be consumed in the Netherlands over the next five years will rise by 2.9 percent (from 31.1 MTOE in 1980 to 31.9 MTOE by 1985). Rises are attributed to the substitution of oil for gas, and also to meet the requirements of the transportation industry. The rapid rise in the consumption of fuel oil reported during the 1975-80 period (up from 3.8 MTOE to 9.2 MTOE) for power generation, is, however, expected to be reversed in the coming five years. Oil consumption for the generation of power is projected to decline 8.6 MTOE in 1981 (down 6.5 percent from 1980) as coal substitution becomes more extensive and gas continues to be favored for use in newer, more efficient power stations. The possibility of purchasing electricity from West Germany may further cut demand for new power facilities, or at least enable the Dutch to postpone construction of some new plants until later in the decade.

Oil Dependency, Policy and Substitution

Natural gas use caused the proportion of oil in primary energy consumption to drop from 60 percent in 1968 to 37.9 percent in 1975; however, in absolute terms, because of the increased use of natural gas, oil consumption has remained virtually unchanged. The movement from oil into natural gas, brought about primarily by a relatively low gas price vis-a-vis that of fuel oil, was reversed after the 1973 oil crisis, for the GON, in a move to preserve the country's natural gas reserves, introduced a policy in 1974 which emphasized switching back to oil (and to an extent coal). This policy ran contrary to IEA goals to reduce oil dependency, but the preservation of gas resources was paramount in Dutch planning. As a consequence, oil consumption between 1975 and 1980 rose by 35 percent, thereby increasing the share of oil, as against other energy carriers, to 46.35 percent or equal to the share of natural gas consumption. The GON hopes to reduce this dependency on oil by increasing the share of coal in the package from 5.7 percent (3.8 MTOE) last year to 26 percent (estimated 20 MTOE) by the year 2000. If successful, this could reduce the share of oil and gas from its current high level of 90 percent in the fuel package to 67 percent. Coverage of the remainder may be via nuclear power, or, if this fails, the increased use of imported coal.

Comment: The move away from and now back to oil once again is to be viewed in the long run as a temporary measure until other energy sources, mainly coal, can be assured. The prime concern of the Dutch today is to maintain a strategic gas reserve, even at the cost of importing higher-priced oil. Without being able to rely on nuclear power, which at present is politically unpopular, and uneasy over an assured supply of coal (most to come from the US), the Dutch conclude that they have no alternative but to fall back on oil. This dependency can change as coal supplies become more secure and the resistance to nuclear power lessens. However, until these two energy problems are more adequately solved, the Dutch will rely on oil as their chief industrial energy and power producer. Their concern over the slowness of the U.S. to develop adequate infrastructure facilities to transport and ship coal only tends to increase pessimism on the part of energy planners, who were hopeful of cutting back oil imports in this decade.

V COAL

Until 1955, the Netherlands ranked among the major coal consuming countries in Europe, covering almost 73 percent of its total energy needs (17 million tons annually) with coal. During the past 25 years, relatively cheaper oil and gas progressively reduced the share of coal used for fuel, so that it today comprises merely 6 percent of primary energy of the Netherlands. Of the total volume of coal consumed in 1980, one half was used to cover the production of electricity (5% of the total fuel package) as compared with a share of 96 percent in 1955. Of the remaining half, 47 percent goes to the steel industry, while less than 2.6 percent is still used for heating and public lighting.

Table XI Dutch Coal Consumption
According To Major Consumers
(million tons of coal)

	1955	PCT	1978	PCT	1990	PCT	2000	PCT
Power Stations	5.0	29	1.6	31	9.5	55	23.1	60
Blast Furnaces	5.2	30	3.3	63	3.7	22	4.5	12
Gasification	5.1	7	-	-	2.0	12	4.5	12
Other Industry	3.2	19	0.2	4	0.4	2	1.0	3
Other	2.6	15	0.1	2	1.5	9	5.2	13
Total	17.2	100	5.2	100	17.1	100	38.3	100

Source: Coal Study: "Steenkool voor Onze Toekomst" 1980.

A serious deterioration of the energy supply situation in the last decade and the bleak outlook for the future supply of both gas and oil has triggered a comeback for coal as a relatively cheap and abundant source of energy. A Coal Memorandum, presented to Parliament in 1980 as an integral part of the GON's revised energy policy, detailed the objectives of a coal policy by recommending diversification into energy sources other than oil and gas. Coal is recommended for use in power generation and other applications, which will lead to an overall increase in coal use to 10 or 15 percent of the fuel package by 1985, and eventually reaching 26 percent toward the end of the century.

Coal for Power Production

The GON's coal policy seeks to increase the share of coal for power generation to 40 percent (roughly 12 to 14 million tons of coal) by the year 2000. The use of natural gas and oil will, as a result, drop to roughly 20 percent of the fuel package for power, while a choice between nuclear energy and additional use of coal is an unknown factor at this time. Coal is therefore viewed as the best alternative to oil and gas in the present decade. Annual consumption is forecasted by the GON to require 13.9 million tons (high estimate) or 11.9 million tons (low estimate) for the annual production of electricity in this decade.

Industrial Coal Consumption

On the industrial side, the past tendency to switch from coal to cheaper and cleaner oil and gas, caused the commercial use of coal to drop from a high of 60 percent in 1955 to less than 10 percent by 1977. Almost 90 percent of today's consumption is by the domestic steel industry. Future industrial conversion to coal from oil and gas will be stimulated by the introduction of new technologies and demonstration projects using coal (fluidized bed combustion, coal gasification, etc.). But these programs will have to be economically attractive in order to induce industry to switch fuels and make the required investments. It is estimated that industrial conversion to coal would require capital investment of up to 1.5 billion guilders (roughly 600 million US dollars at current exchange rates) until the year 2000, while annual coal imports would increase by 5 million tons.

Coal Research and Development

The GON's coal memorandum reveals that the number of coal gasification pilot and large sale projects recently announced for completion between 1985-95 (four projects with an aggregate coal consumption of approximately three to four million tons of coal in the 90's) will alone increase coal imports to around 1.5 million tons annually by 1990. Gas to be produced via coal gasification projects will either be used for power generation or for blending with high calorific natural gas from the North Sea. A demonstration plant stage is to be followed by the construction by 1990 of three gasification units with a capacity of 2 million tons of coal each to produce and blend industrial and synthetic gasses. The project will require capital investment of 3 billion guilders.

Coal Supply

Dutch domestic and technically recoverable coal reserves amount to about 700 million tons. Since the last coal mine in the Netherlands was closed in 1974, the Netherlands has been entirely dependent on imported coal to cover domestic needs. Total coal imports in 1980 amounted to 7.1 million tons, and originated primarily from Germany (30 percent), the U.S. (19 percent) and Australia (16 percent), with the remainder covered mainly by imports from Poland and South Africa. Since the GON has rejected recommendations to provide public funds for the development of low grade coal deposits in the country, the Dutch will have to seek coal imports to cover this growing demand. The Dutch initially plan to rely on U.S. exports, but in the long run view new deposits in Australia, South Africa and Colombia as supplemental sources of supply.

VI ELECTRICITY

Consumption

In 1980 Dutch domestic consumption of electricity amounted to 4.6 MTOE (53,700 GWh) or roughly 6.9 percent of total consumption of primary energy carriers in that year. By far the largest share of power consumption is by industry (51.2 percent) followed by households (28.3 percent) while a relatively small share is required by electricity-operated transportation and public lighting.

Table XII Dutch Power Consumption According to Sectors 1970 - 1980 (1000 GWh)

	1970	1975	1979	1980	Pct of Total	Increase 1979-80	Average Increase 1979-80
Industry	16.9	23.1	26.7	27.5	51.2	+ 3.0	+ 5.1
Transport	0.9	0.9	1.0	0.9	1.7	- 10.0	+ 0.4
Households	8.7	12.4	16.1	15.2	28.3	- 5.6	+ 5.9
Public Lighting	0.5	0.7	0.7	0.8	1.5	+ 14.3	+ 3.8
Other Consumers	4.3	7.1	9.3	9.3	17.3	unchanged	+ 8.0
Total	31.3	44.2	53.8	53.7	100.0	- 0.2	+ 5.6

Source: SEP

During the past decade power consumption in the Netherlands has shown an average of 5.6 percent growth, primarily accounted for by an above average rise in the use of electricity by households (up 5.9 percent), while industrial consumption of power during that period rose by an average of 5.1 percent. However, last year the upward trend was interrupted for the first time since World War II as overall power consumption in the Netherlands showed a drop of 0.2 percent (up 4.2 percent in 1979 over 19??). The decline was felt primarily in the industrial sector and has been attributed to the economic recession, but also to a growing amount of self-generated power by large industries, e.g., oil refineries and chemical industries. Estimates by the Joint Electricity Producers in the Netherlands (SEP) for power consumption in 1981 consequently indicate consumption in 1981 to remain at the same or below the 1980 level. Recently published medium-long term (1981-1991) projections by the SEP have, on the other hand, been revised downwards for the fifth year in a row and now show the anticipated power consumption in the Netherlands to grow between 3.6 and 3.1 percent annually. SEP projections provide for a growth of total power consumption until 1990 of 36.9 percent or down form a growth of 43.6 percent recorded during the past decade.

Supply and Capacity of Electricity

At the end of 1980, total installed power capacity in the Netherlands was 15,390 MW (spread over 34 power stations) representing a 2.7 percent increase from 14,990 MW reported in 1979. With required capacity during the 1980/1981 period estimated at 12,617 MW, Dutch power stations are consequently faced with an excess capacity of 2,700 MW or 17.5 percent of total capacity. Expansion of conventional capacity has, therefore, been deferred for the time being. Nevertheless SEP medium-long term plans provide for an expansion of capacity during the 1980/85 period of 1,335 MW to be covered by coal fired units (925 MW), district heating (255MW), industrial power generation (25 MW) and experimental coal gasification (130 MW). As a result the balance between expected growth of power demand and planned capacity expansion will lower excess capacity to 27 MW in 1986/1987, after which period SEP again projects a shortage of capacity growing to 3,500 MW in 1990/1991. SEP projections provide for coverage of this capacity gap as follows:

Period	Capacity (MW)	Fuel Type
1986/88	1,100	Coal fired (600 MW and 500 MW)
1986/87	360	Blast-furnace gas fired
1985/91	900	District heating and combined heat/power generation
1989/91	1,600	Dual fired
Total	3,960	

Power Generation Fuels

Table XIII Fossil Fuel Consumption by Dutch Power Stations (million tons oil equivalents)

	1970	Pct	1975	Pct	1979	Pct
Coal	2.5	16.9	0.1	0.5	1.5	7.5
Oil	2.8	18.9	0.7	3.6	4.6	23.1
Natural gas	5.8	39.2	14.3	73.7	9.8	49.3
Other *	3.7	25.0	4.3	22.2	4.0	20.1
Total	14,8	100.0	19.4	100.0	19.9	100.0

Source: SEP * blast-furnace and other gas

A breakdown of fossil fuel consumption by Dutch public power stations (the Netherlands has only two producing nuclear power plants with a joint capacity of 497 MWe), in table XIII reveals that consumption of natural gas during the past decade has played an increasingly dominating role in the fuel package for power generation. Conversion of SEP data to MTOE shows that share of natural gas rose from 39.2 percent in 1970 to over 73 percent in 1975, while the consumption of oil dropped from 18.9 percent to 3.6 percent. This trend was reversed following the introduction of the Government's energy policy in 1974 which emphasized a gradual phasing out of natural gas for industrial steam generation and electricity production. The Power Station Fuel Coverage Plan (BIPC), an integral part of the general energy policy, provided for a gradual reduction of the natural gas share in the fuel package while falling back on oil to close the gap. As a consequence the share of natural gas for power dropped to 49.3 percent in 1979 while the share of oil rose rapidly to 23.1 percent or approximately the same 1970 level.

Comment: To reduce the dependence on increasingly costly oil, the GON is pushing for a larger share of the fuel package to be covered by coal or via the sensitive nuclear route. To this end a coal memorandum published last year anticipates 40 percent of power generation in the year 2000 to be covered by coal requiring roughly ten times today's levels of coal consumption by power stations. Plans by the GON to cover growing power needs in the Netherlands by building three 1000 MW nuclear plants have been postponed indefinitely. Taking into account that no nuclear decision is to be expected before 1984 the SEP's long term plan does not include the nuclear option until after 1990. Furthermore the electricity growth rate used by the GON as a basis for justifying more nuclear capacity has long been outdated, making the need for the three new nuclear facilities less pressing.

VII NUCLEAR ENERGY

Prospects for additional nuclear power generating capacity in the Netherlands are extremely dim at this time. In 1980 nuclear energy composed slightly less than 1.5 percent of primary energy production in the Netherlands, for the country has only two nuclear power plants with an aggregate capacity of 497 MW. Plans to expand this capacity by the addition of three new power stations of 1000 MW each by the end of the century are proposed in the third and final chapter of the GON's Energy Memorandum. Parliamentary approval to increase the use of nuclear energy for power generation, to cover as much as 40 percent of power requirements by the year 2000, is heavily dependent on the outcome of a two-year public debate of the general nuclear issue, which is now expected to start by the end of 1981. Expansion of nuclear capacity is deemed to be inevitable by the industry in general to meet the needs of the next century, but a strong anti-nuclear lobby and the opposition of local municipalities designated to be the sites for nuclear stations will weigh heavily on the GON's final decision. At the present time, anti-nuclear groups vociferously seek to have the two existing plants closed.

A major issue to be included in the public debate will be the question of storage of the nuclear waste from existing and proposed plants. Today radioactive waste from Holland's only commercial nuclear plant at Borssele (445 MW) is reprocessed at Cape La Hague, France, while spent fuel from the experimental station at Dodewaard (52 MW) is shipped for reprocessing to Windscale in England. Ratification of existing storage and reprocessing contracts with France and the UK has been deferred, pending the outcome of the general debate on nuclear issues. Parliament has also banned for the two-year debate period plans by the GON to do exploratory drilling in salt domes in the north of the country to determine their suitability for waste storage. In the event the green light is given for additional nuclear power production (should the conclusion of the public debate be positive) the inclusion of more nuclear energy in the Dutch energy package would show little effect before 1991, in view of the long lead time required for the construction of nuclear plants. In the interim, the Dutch will have to rely on increased oil and coal consumption to meet the Netherland's demand for electricity in this decade.

VIII ALTERNATIVE ENERGY SOURCES

Wind, solar and other experimental projects are not expected to contribute very much to Dutch energy, at the most covering 2 to 4 percent of total energy needs by the year 2000. The persistent cloud cover makes the possible contribution from direct solar energy very small at 0.3 to 0.9 percent, but the potential for wind energy is more promising, and if successfully implemented could cover as much as 4 percent of energy needs. Recent estimates by the semi-official research institute (ECN) show that during the next two decades, construction of 15,000 small windmills may generate up to 450 MW of power, while a complex of an additional 2000 large wind-turbines could generate an estimated 2000 MW. The latter project is now under serious consideration, and could be an expensive, but unique contribution to meeting energy needs in the next century.

DUNNIGAN

- UNCLASSIFIED -

Table I. THE NETHERLANDS ENERGY BALANCE

Energy Balance 1980 Part 1 Supply

SUPPLY	Coal	Oil	Natural Gas	Electricity	Others	Total
	million tonnes oil equivalents (MTOE)					
Domestic Production Primary energy		1.5	64.6	0.9	0.2	67.2
Use Of Stocks (+) By:						
Producers						
Trade						
Total Use Of Stocks (+)						
Total Available From Domestic Sources		1.5	64.6	0.9	0.2	67.2
Import of :						
Primary Energy	4.0	58.3	3.1			65.4
Secondary Energy	0.3	12.1				12.1
Total Import	4.3	70.4	3.1			77.8
TOTAL	4.3	71.9	67.7	0.9	0.2	145.0

Source: Central Planning Bureau : The Dutch Economy in 1985

Table I. THE NETHERLANDS ENERGY BALANCE

Energy Balance 1980 Part 2 Consumption

CONSUMPTION	Coal	Oil	Natural Gas	Electricity	Others	Total
	million tonnes oil equivalents (MTOE)					
Households and Governments						
1. Heating/Lighting	0.1	1.6	11.5	1.7	0.2	15.1
2. Transport		2.4				2.4
3. Total 1 + 2	0.1	4.0	11.5	1.7	0.2	17.5
Other Sectors						
4. Industry excl. energy	1.8	9.5	9.5	2.0	0.2	23.0
5. Services		1.4	3.1	0.6		5.1
6. Agriculture		0.5	2.3	0.1		2.9
7. Construction		0.8		0.1		0.9
8. Transport incl. private		5.7		0.1		5.8
9. Total 4-8 excl. energy	1.8	17.9	14.9	2.9	0.2	37.7
10. Total 3+9.Final Domestic Consumption	1.9	21.9	26.4	4.6	0.4	55.2
11. Mutation Losses*	0.6	3.2		0.1		3.9
12. Input Conventional Power Stations	1.3	6.0	4.7		-0.2	11.8
13. Net Output Conv. Power Stations				-4.4		-4.4
14. Input Nuclear Power Stations				0.9		0.9
15. Net Output Nuclear Power Stations				-0.3		-0.3
16. Total Energy Sector 11-15	1.9	9.2	4.7	-3.7	-0.2	11.9
17. Total Domestic Consumption 10 + 16	3.8	31.1	31.1	0.9	0.2	67.1
Export of:						
Primary Energy			36.6			36.6
Secondary Energy	0.5	40.8				41.3
Total Export	0.5	40.8	36.6			77.9
TOTAL	4.3	71.9	67.7	0.9	0.2	145.0

* by steamcole industries, refineries and other mining.

Table II. THE NETHERLANDS ENERGY BALANCE

Energy Balance 1985 Part 1 Supply

SUPPLY	Coal	Oil	Natural Gas	Electricity	Others	Total
	million tonnes oil equivalents (MTOE)					
Domestic Production						
Primary energy		2.0	60.1	1.0	0.2	63.3
Use Of Stocks (+) By:						
Producers						
Trade						
Total Use Of Stocks (+)						
Total Available From Domestic Sources		2.0	60.1	1.0	0.2	63.3
Import of :						
Primary Energy	5.3	62.4	7.6			75.3
Secondary Energy	0.8	12.5				13.3
Total Import	6.1	74.9	7.6			88.6
TOTAL	6.1	76.9	67.7	1.0	0.2	151.9

Source: Central Planning Bureau : The Dutch Economy in 1985

- UNCLASSIFIED -

Table II. THE NETHERLANDS ENERGY BALANCE

Energy Balance 1985 Part 1 Supply

SUPPLY	Coal	Oil	Natural Gas	Electricity	Others	Total
	million tonnes oil equivalents (MTOE)					
Domestic Production Primary energy		2.0	60.1	1.0	0.2	63.3
Use Of Stocks (+) By:						
Producers						
Trade						
Total Use Of Stocks (+)						
Total Available From Domestic Sources		2.0	60.1	1.0	0.2	63.3
Import of :						
Primary Energy	5.3	62.4	7.6			75.3
Secondary Energy	0.8	12.5				13.3
Total Import	6.1	74.9	7.6			88.6
TOTAL	6.1	76.9	67.7	1.0	0.2	151.9

Source: Central Planning Bureau : The Dutch Economy in 1985

Table II. THE NETHERLANDS ENERGY BALANCE

Energy Balance 1985 Part 2 Consumption

CONSUMPTION	Coal	Oil	Natural Gas	Electricity	Others	Total
	million tonnes oil equivalents (MTOE)					
Households and Governments						
1. Heating/Lighting		1.4	11.4	1.8	0.4	15.0
2. Transport		2.2				2.2
3. Total 1 + 2		3.6	11.4	1.8	0.4	17.2
Other Sectors						
4. Industry excl. energy	2.3	11.2	9.4	2.3	0.2	25.4
5. Services		1.2	3.3	0.7		5.2
6. Agriculture		0.4	2.4	0.2		3.0
7. Construction		0.8		0.1		0.9
8. Transport incl. private		6.1		0.1		6.2
9. Total 4-8 excl. energy	2.3	19.7	15.1	3.4	0.2	40.7
10. Total 3+9. Final Domestic Consumption	2.3	23.3	26.5	5.2	0.6	57.9
11. Mutation Losses*	0.6	3.4		0.1		4.1
12. Input Conventional Power Stations	2.7	5.2	5.7		-0.4	13.2
13. Net Output Conv. Power Stations				-5.0		-5.0
14. Input Nuclear Power Stations				1.0		1.0
15. Net Output Nuclear Power Stations				0.3		-0.3
16. Total Energy Sector 11-15	3.3	8.6	5.7	-4.2	-0.4	13.0
17. Total Domestic Consumption 10 + 16	5.6	31.9	32.2	1.0	0.2	70.9
Export of:						
Primary Energy			35.5			35.5
Secondary Energy	0.5	45.0				45.5
Total Export	0.5	45.0	35.5			81.0
TOTAL	6.1	76.9	67.7	1.0	0.2	151.9

* by steamcole industries, refineries and other mining.

LIST OF MAJOR ELECTRIC UTILITY COMPANIES

SPAIN

Gas y Electricidad, S.A.
Apartado n° 46
Palma de Mallorca

Catalana de Gas y Electricidad, S.A.
Apartado n° 63
Barcelona 2

Empresa Nacional Hidroeléctrica de Ribagorzana, S.A. (*)
Paseo de Gracia, 132
Barcelona 8

Fuerzas Eléctricas de Cataluña, S.A.
Apartado n° 491
Barcelona 2

Fuerzas Hidroeléctricas del Segre, S.A.
Vía Layetana, 45
Barcelona 3

Hidroeléctrica de Cataluña, S.A.
Archs, 10
Barcelona 2

Hispano-Francesa de Energía Nuclear, S.A.
Tuset, 20-24
Barcelona 6

Térmicas del Besós, S.A.
Ronda del General Mitre, 126
Barcelona 21

Unión Eléctrica de Canarias, S.A.
Apartado n° 161
Las Palmas de Gran Canaria

Fuerzas Eléctricas del Noroeste, S.A.
Fernando Macías, 2
La Coruña

Empresa Nacional de Electricidad, S.A. (*)
Velázquez, 132
Madrid 6

Empresa Nacional Eléctrica de Córdoba, S.A. (*)
Monte Esquinza, 24
Madrid 4

Hidroeléctrica Española, S.A.
Apartado nº 458
Madrid 1

Saltos del Nansa, S.A.
Alcalá, 49
Madrid 14

Unión Eléctrica, S.A.
Capitán Haya, 53
Madrid 20

Compañia Eléctrica de Langreo, S.A.
Apartado nº 2
La Felguera, Asturias

Hidroeléctrica del Cantábrico, S.A.
Plaza de la Gesta de Oviedo, 1
Oviedo, Asturias

Compañia Sevillana de Electricidad, S.A.
Apartado nº 45
Sevilla

Electra de Viesgo, S.A.
Del Medio, 12
Santander

Sociedad Hidroeléctrica Ibérica Iberduero, S.A.
Apartado nº 119
Bilbao

Eléctricas Reunidas de Zaragoza, S.A.
San Miguel, 10
Zaragoza 1

(*) These firms are owned by the Government through the INI-National Institute of Industry

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Association of utility companies

Unidad Eléctrica, S.A. (UNESA)
Francisco Gervás, 3
Madrid 20

Verzeichnis der Mitgliedsfirmen des
VEREIN DEUTSCHER KOHLENIMPORTEURE E. V.
nach dem Stand vom Mai 1981

Society of German Coal Importers

Names and Addresses

1. ANKER Vitol GmbH, 2000 Hamburg 1, Pelzerstraße 5, Postfach 100 129
2. Waldemar G. H. Below, 2800 Bremen 1, Baumwollbörse, Zimmer 413
   Postfach 107 261
3. Deutsche BP Aktiengesellschaft, 2000 Hamburg 60, Überseering 2
4. Deutsche Shell Aktiengesellschaft, 2000 Hamburg 60, Überseering 35
5. Deutsches Kohlen-Depot
   Handelsgesellschaft mbH, 4600 Dortmund-Kley, Brandschachtstraße 2
6. EBV-Brennstoffhandel GmbH, 5100 Aachen, Buchkremerstraße 6
7. O. L. Eichmann GmbH, 2000 Hamburg 1, Ballindamm 17
8. Fisser & v. Doornum, 2970 Emden, Ringstraße 43, Postfach 309
9. Anton Garrigues*, 2000 Hamburg 1, Chilehaus C, Postfach 106 720
10. Georg von Giesche's Erben Handelsgesellschaft mbH,
    2000 Hamburg 1, Chilehaus C, Postfach 106 720
11. Haniel Trading GmbH, 4100 Duisburg 13, Hafenstraße 12
12. Hansen Neuerburg GmbH, 4300 Essen, Rüttenscheider Straße 3, Postfach 102 654
13. HEDWIGSHÜTTE Handelsgesellschaft mbH., 2000 Hamburg 1, Chilehaus A
14. Hoesch Brennstoff- und Düngerhandel GmbH, 4600 Dortmund 1, Postfach 290
15. Holm & Molzen GmbH, 2390 Flensburg, Harniskai 1, Postfach 150
16. Holsatia Kohlengroßhandel*, 2300 Kiel, Sophienblatt 11
17. Hermann C. van Jindelt Nachf., 2800 Bremen 1, Postfach 104 480
    Hermann C. van Jindelt Nachf., 2970 Emden, Handelshof, Postfach 66
18. Klöckner & Co., Feste Brennstoffe Ausland, 4100 Duisburg 1
    Köcknerhaus, Neudorfer Straße 3—5
    Klöckner & Co., Zweigniederlassung Hamburg, 2000 Hamburg 50
    Neue Große Bergstraße 7
19. KRUPP HANDEL GMBH, 2000 Hamburg 1, Chilehaus B
20. Kohlen-Groß-Handel Lange, Kühl & Co. KG, 2300 Kiel, Willestraße 8—10
21. Carl Loeck*, 2300 Kiel, Bismarckallee 27
22. Wm. Lübcke*, 2208 Glückstadt, Königstraße 23, Postfach 1260
23. Meentzen & Franke GmbH & Co., 2800 Bremen 1, Hinter der Mauer 9
24. Montan Brennstoffhandel & Schiffahrt GmbH. & Co. KG.
    6800 Mannheim 1, Rheinvorlandstraße 5
25. Otto A. Müller GmbH, 2000 Hamburg 1, Domstraße 11
26. Willy Peters GmbH, 2000 Hamburg 1, Chilehaus A
27. Gebrüder Petersen KG, 2800 Bremen 1, Am Wall 87/88, Postfach 102 846

28. POLKOHLE Einfuhrgesellschaft für polnische Kohlen mbH & Co. KG
    2000 Hamburg 1, Schauenburgerstraße 6, Postfach 105 146
29. Raab Karcher Kohlehandel GmbH, 4300 Essen 1, Rüttenscheider Stern 5
    Postfach 1272
    Raab Karcher GmbH, 2000 Hamburg 74, Werner-Siemens-Straße 70
30. Reunert & Co. mbH, 2000 Hamburg 13, Feldbrunnenstraße 43
31. Ruhrkohle Handel GmbH, 4000 Düsseldorf 30, Jägerhofstraße 29
32. Theodor E. Schiff & Co.*, 2000 Hamburg 1, Mönckebergstraße 21
    Postfach 105 804
33. Schiffahrt- & Kohlen Gesellschaft mbH, 2000 Hamburg 1, Chilehaus B
34. Hans D. Sommerhoff & Ko., 2000 Hamburg 13, Harvestehuder Weg 21
35. STEAG Handel GmbH, 4220 Dinslaken, Duisburger Straße 170
36. Stinnes AG, 4330 Mühlheim a. d. Ruhr 12, Humboldtring 15
37. M. Stromeyer Lagerhausgesellschaft, 6800 Mannheim 1, Rheinvorlandstraße 5
    Postfach 2252
38. Stromeyer GmbH, 4330 Mülheim a. d. Ruhr 1, Reichspräsidentenstraße 21—25
39. Suhren & Co.*, 2800 Bremen, Bürgermeister-Smidt-Straße 58/60
    Postfach 101 142
40. Tanklager Moorburg GmbH, Hamburg 1, Pelzerstraße 5, Postfach 100 129
41. Thyssen Brennkraft Handel u. Transport GmbH, 4100 Duisburg-Ruhrort
    Krausstraße 59
42. W. Traber & Co., 2000 Hamburg 13, Heimhuder Straße 48
43. Vogelsang & Schönfeld, 2000 Hamburg 1, Chilehaus C, Postfach 106 720
44. Albert Wiener, 2000 Hamburg 1, Chilehaus C, Postfach 106 720
45. Winschermann GmbH, 4000 Düsseldorf 30, Cecilienallee 59
46. Wirtschaftliche Vereinigung Deutscher Versorgungsunternehmen AG
    6000 Frankfurt/Main 70, Kennedyallee 89
    Wirtschaftliche Vereinigung Deutscher Versorgungsunternehmen AG
    Zweigniederlassung Hamburg, 2000 Hamburg 1, Glockengießerwall 2
    Postfach 106 620

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* Außerordentliche Mitglieder.

Subject: IEA; SLT Review of National Energy Programmes 1980
Federal Republic of Germany

A. Historical Energy Balances

1. vid. Annexes 1 and 2 of 1979 and 1980 submissions (Table 1)

B. Projected Energy Balances

1. The energy forecasts for 1985, 1990 and 1995 are enclosed in Annexes 3, 4 and 5 (Table 1).

2. The energy forecasts submitted are based on a report that is being compiled by three independent economic research institutes. The report presents two possible developments in the energy sector based on differing assumptions concerning overall economic growth. The energy forecasts submitted are the arithmetic mean of these two possibilities. These forecasts do not reflect a political objective.

   The report is expected to be completed by September 1981. It is likely to contain modifications compared with the forecasts submitted herewith.

3. The answer to the question on methodology provided in 1979 continues to be valid.

   It was assumed that the price of crude oil will increase by 3.5 % a year in real terms between 1980 and 1995.

4. The forecasts take account of all energy policy measures taken to date; they also include future measures as far as these can be expected today.

5. The following assumptions were made for GDP growth:

1979 - 1985	3.1 % p.a.
1985 - 1990	2.9 % p.a.
1990 - 1995	2.8 % p.a.

If average GDP growth were reduced by 0.5 % p.a., a rough calculation would produce the following changes:

	Reductions in mtoe		
	1985	1990	1995
TPE	4	8	10
Total domestic production	0	0	2
Net oil imports	3	6	6
TFC	3	6	7

C. Additional Energy Data

In some cases, the additional energy data presented here is not consistent with Table 1 as it was compiled at different times and from different sources.

1. and 2. vid. Annex 6 (Table 2)

3. a) Coal

A presentation according to Table 3 is not possible. Forecasts by the institutes on coal imports and exports for 1985, 1990 and 1995 can be found in Annexes 3, 4 and 5 (Table 1).

- 1980

				plus supplies to the GDR
exports	total	22.1m t		1.1m t
	of which coking coal	16.5m t		1.0m t
	power station coal ca.	3m t		
imports	total		10.4m t	
	of which coking coal		2.1m t	
	power station coal		6.2m t	

- 3 -

- 1981

  Exports are not expected to change significantly in 1981, imports will probably continue to rise. The volume of imported coking coal is likely to drop to about 1.5m t as supplies to gas works are discontinued, while imports of power station coal could rise to a level far in excess of 7m t.

- 1985, 1990, 1995

  exports: It can hardly be assessed how exports of German hard coal will develop in the coming years. This is true in particular of coking coal. A decisive factor determining the volume of exports will be the price trend on the world coal market as it defines the competitiveness of German coal.

  imports: In order to guarantee the energy supply of the Federal Republic, demand for imported coal will increase, especially for purposes of oil substitution.

Without affecting the entirely unrestricted hard coal imports from EC countries (at present over 2m t/a), the 1980 Coal Tariff Quota Law has introduced new provisions for imports from third countries. It will apply until the end of 1995 and provides for growing import quotas - which the Federal Government can increase under certain conditions - for the various areas of consumption. The quotas, which at present seem to be sufficient to cover future import requirements, total

for 1985 about 23m t (can be increased to about 31m t),

for 1990 about 31m t (can be increased to about 43m t),

for 1995 about 39m t (can be increased to about 55m t).

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Of this will be available for power stations

in 1985 about 9m t (can be increased to about 11m t),
in 1990 about 13m t (can be increased to about 17m t),
in 1995 about 17m t (can be increased to about 23m t).

Within these limits the data forecast by the institutes (cf. Annexes 3, 4 and 5) can be achieved.

b) Oil

No information is available.

c) Natural gas
vid. Annex 7 (Table 3)

4. vid. Annex 8 (Table 4)

On the basis of more recent information, electricity consumption is expected to grow at an annual rate of only just over 3 % until 1995. Provided the projects that are in an advanced planning stage (Annex 8) are carried out, power stations now operating or under construction will be adequate to cover assumed growth until 1990. Nuclear power station capacity of 26 500 MW expected to be in place in 1990 is likely to be at the top end of what can today be realistically assumed to be achieved. In order to realize the capacity that is considered to be necessary in 1995 decisions will have to be taken especially on the construction of additional nuclear power stations.

As the rate of growth in electricity consumption has decreased and power station construction remains unchanged compared with the 1980 country review, the capacity of oil-fired power stations can be reduced even more sharply. A considerable number of the oil-fired power stations listed in Table 4 will have a mere reserve function (cold reserve!) after 1990.

The institutes' forecasts (Annexes 3, 4 and 5) assume a certain economic growth and a corresponding rise in electricity consumption. By contrast, the data in Annex 8 (Table 4) is based on information supplied by industry on power stations under construction and power stations the construction of which will probably start in the near future. As a result of these different approaches complete consistency cannot be obtained.

5. The contribution of ambient heat through electric and gas-fired heat pumps including solar heat from collectors is estimated to amount to

	mtoe
1985	0.5
1990	2.0
1995	4.0

German energy statisticians have agreed not to include these contributions in the energy balances submitted.

6. vid. Annex 9 (Table 4) and Annex 10

7. a) Oil and gas

Drilling activities of the companies involved in hydrocarbon development - cf. Annex 11 (Table 6) - were down slightly in 1980 on the year before. The total depth of drillings completed in 1980 was 236,100 m (- 6.5 % compared with the year before).

In 1980 a total 99 drillings were completed, of which 78 were for oil and 21 for natural gas. Of these 81 proved to be productive (oil and gas). The drillings included:

22 exploration drillings (9 finds)
11 enlargement drillings (9 finds)
66 production and
ancillary drillings (63 finds)

b) Coal

cf. 9 a) below

c) Uranium

For the territory of the Federal Republic of Germany studies on geologically favourable areas are being carried out by industrial companies and government organisations. These studies are mainly based on previous results and include a re-evaluation of the uranium potential.

At present eight mining companies are engaged in field exploration. Almost all parts with favourable geological condition are held under concessions. The present annual expenditure by private companies is about US $ 10 to 11 million.

The uranium exploration statistics for the territory of the Federal Republic of Germany are as follows:

	Uranium Exploration Data				
year	Aerial radio-metric surveys km^2	Surface radio-metric surveys km^2	Geochemistry (water, stream sediments, soil) km^2	Surface drilling percussion m	core m
1973	10 600	68	n.a.		17 200
1974		n.a.	n.a.		33 500
1975		n.a.	n.a.	60 000	1 500
1976		n.a.	n.a.	57 000	n.a.
1977	21 660	12 000	5 000	59 000	4 100
1978	3 000	7 500	23 000	78 000	8 600
1979	-	10 000	23 000	61 500	11 600
1980	-	3 400	23 500		31 500

Total area currently held by commercial companies for exploration:
72 300 km^2.
Number of companies currently involved: 8.

Exploration in the Federal Republic of Germany is carried out by national and international companies. There is no restriction of private and/or foreign participation in uranium exploration and exploitation as long as these undertakings are carried out under existing mining laws.
There are no producing uranium mines in the Federal Republic of Germany, but underground exploration work is taking place at 5 uranium deposits or occurrences.

3 German companies are active in uranium exploration activities in foreign countries. They are involved in exploration activities in Australia, Brazil, Canada, Marocco, Niger, USA, Tanzania and Zambia. In the development of the deposits in the Key Lake area, Saskatchewan/Canada; Ranger, Alligator River district, N-Australia, and Yeelirrie, W-Australia, German companies are involved together with domestic companies. Two companies participate in the exploration of the Rabbit Lake deposit in Canada and the Arlit deposit in Niger. Plans for exploration activities in other countries in Africa, S.E. Asia and South America are currently under investigation.

Government agencies (BGR) were involved in exploration activities in Cameroon, Indonesia, Malaysia, Philippines and Thailand in the context of Technical Assistance jointly with national organisations of the countries concerned.

8. vid Annex 12 (Table 7)

9. a) Hard coal

Until around 1975 exploration in the domestic coal mining industry was restricted to an absolute minimum in view of the steady decline in production.

In spite of more intensive exploration in the second half of the 70s (1975 - 1979 expenditure of around DM 225m, of which around DM 50m in 1979), this exploration backlog has not yet been cleared. In order to maintain capacity in the long run, considerable additional efforts will therefore be required in the immediate future to explore the reserves adjacent to the deposits developed today. Exploration expenditure is estimated at DM 80 - 100m for 1980. The same level of annual expenditure is deemed to be necessary for the next five years.

Up to now, mining companies in the Federal Republic have not been granted any direct public exploration aids. It cannot be ruled out that such aids will be necessary in the future.

b) Lignite

Exploration expenditure in open-cast lignite mining is geared to requirements; no data is available.

c) Oil and gas

Investment totalled for

	exploration	mineral oil processing
	- in million DM -	
1976	650	680
1977	600	885
1978	674	925
1979	953	573
1980	953	853
total	3,830	3,916

(source: IFO München)

d) Uranium

The approximate expenditures for domestic uranium exploration were as follows:

Year	Total Exploration Expenditures 1,000 US $
1973	1,900
1974	2,500
1975	2,700
1976	3,100
1977	6,600
1978	8,100
1979	10,000
1980	11,000

Exploration Expenditures in Other Countries

Year	US $
Pre-1979	107,000,000
1977	21,000,000
1978	28,000,000
1979	30,000,000
1980	30,000,000
1981[x]	35,000,000
TOTAL	251,000,000

[x] Planned.

The Federal Government provides financial assistance to private companies involved in domestic and foreign exploration activities up to 50 % of each project. The amount of financial assistance given to a specific project has to be reimbursed by the company in case of success.

No significant changes in the subsidy policy are planned for the near future.

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D. Indicators

Industry

a) The estimated growth rate for net industrial production is 4.1 % for 1980 - 1985 and 3.3 % for 1985 - 1990.

b) Share of energy intensive industries

- in total industrial output

Net volume of output in billion DM at 1970 prices

	1978	1985	1990
Stones and clays	13	15	17
Iron-producing industry	14	16	17
Non-ferrous metals	5	6	7
Chemical industry	45	64	82
Pulp, paper and board	4	4	5
Mining and manufacturing as a whole	379	487	574

- in industrial TFC

	total final consumption %			
	1973	1979	1985	1990
Stones and clays	12.0	9.8	9.3	8.9
Iron-producing industry	33.3	30.1	26.7	25.2
Non-ferrous metals	3.4	4.2	4.6	4.6
Chemical industry	16.3	18.5	20.9	22.3
Pulp, paper and board	3.6	3.9	3.5	3.4
Mining and manufacturing as a whole	100	100	100	100

- in oil consumption

	oil consumption %			
	1973	1979	1985	1990
Stones and clays	20.9	18.2		
Iron-producing industry	16.2	12.8		
Non-ferrous metals	2.3	2.1		
Chemical industry	14.3	14.4	n.a.	n.a.
Pulp, paper and board	5.0	5.9		
Mining and manufacturing as a whole	100	100		

c) Physical output/energy and oil ratios for industry

No official statistics are available. Reference is therefore made to the following table reproduced in part from an analysis by the Ifo Institute:

Development of specific energy consumption in selected branches of the basic materials and producer goods industry in tce/million DM

	1973	1977	trend extrapolation 1985		1990	
			a	b	a	b
Iron-producing industry	2062.9	2033.2	1877.0	1867.5	1779.4	1747.9
Chemical industry	373.4	373.2	263.6	258.6	216.2	204.3
Non-ferrous metals	727.8	816.7	-	-	-	-
Stones and clays	999.3	885.3	792.7	786.5	736.2	719.6
Pulp, paper and board	1036.2	1020.0	902.0	895.7	845.9	829.2
above five branches total	859.9	785.0	-	-	-	-

a) Assumed rate of annual growth in real investment compared with 1977:
4 % in the chemical industry
2 % in the remaining branches

b) Assumed rate of annual growth in real investment compared with 1977:
6 % in the chemical industry
4 % in the remaining branches

Source: Arbeitsgemeinschaft Energiebilanzen, Deutsches Institut für Wirtschaftsforschung, calculations by the Ifo Institute d)

Combined Heat and Power Production	1973[1]	1979[1]	1980[1]
Capacity (gross in MW)	13,500	14,800	15,100
Electricity GWh	41,100	41,100	41,200
% share of total electricity production	13.7	11.1	11.2

[1] Rounded figures; combined heat and power production is not calculated separately; only estimates can be made, especially for the industrial sector.

Residential/Commercial Sector

a) Consumption in the residential sector amounted to

- mtoe -

	1973	1979	1980
final energy consumption	47.5	51.7	n.a.
of which heating oil	28.4	28.9	n.a.

b) No information available.

c) The number of dwelling units is estimated at

- million -

1973	1980	1985	1990
22.1	24.0	23.5	24.3

Transport Sector

a) Car population

motor vehicles - million -

	1973	1979	1980	1985	1990
total	20.3	26.1	27.1	n.a.	n.a.
of which:					
saloon and estate cars	17.0	22.5	22.5	25.1	28.0

b) Structure of car population

- passenger car population, new registrations, cancellations -

	1973	1979	1980
	passenger car population		
by engine size			
up to 999 cm^3 (%)	10.7	8.4	8.2
1000 to 1499 cm^3 (%)	49.3	39.9	39.1
1500 to 1999 cm^3 (%)	33.0	40.8	40.9
2000 cm^3 and over (%)	7.0	10.9	11.8
total (x 1000)	17023	22535	23192
of which diesel engined (x 1000)	559	993	.
	new passenger car registrations		
by engine size			
up to 999 cm^3 (%)	9.6	6.6	7.4
1000 to 1499 cm^3 (%)	40.1	34.2	39.0
1500 to 1999 cm^3 (%)	40.4	41.5	38.2
2000 cm^3 and over (%)	9.9	17.7	15.4
total (x 1000)	2031	2623	2426
of which diesel engined (x 1000)	81	197	.
	passenger car cancellations		
number of vehicles (x 1000)	1437	1691	.
average age (years)	9.4	9.6	.

Source: Federal Ministry of Transport

c) Average efficiency

Fuel consumption of new registered passenger cars is[1]

	1973	1978	1979	1980	1985
litres per 100 km	10.3[2]	9.59	9.357	9.02	8.1-8.6[3]

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[1] Fuel consumption measured using ECE method (town cycle, 90 km/h, 120 km/h)

[2] Excl. imported vehicles

[3] The car industry has pledged to reduce average fuel consumption of new passenger cars by 15 %, if possible, and by at least 10 to 12 % from its 1978 level by 1985.

Source: Federal Ministry of Economics

d) Development of car mileage

car mileage

	1973	1979	1980
	average mileage in 100 km		
saloon and estate cars	15.0	14.4	n.a.
lorries	26.7	23.4	n.a.
	total mileage in billion km		
saloon and estate cars	229.8	291.0	n.a.
lorries	25.5	24.0	n.a.

Source: Federal Ministry of Transport

passenger transport

	number of persons carried in millions		
	1973	1979	1980
private transport[1]	24 710		28 910
(railways	1 093		1 085)
total transport	32 750		36 981

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1) saloon cars, estate cars, motor cycles, mopeds

Source: Federal Ministry of Transport

passenger transport

	passenger kilometres in billions		
	1973	1979	1980
private transport	389.4	465.2	n.a.
(railways	39.8	38.0	n.a.)
total transport	503.3	588.6	n.a.

Source: Federal Ministry of Transport

E. National Policy Objectives

1. The remarks in recent Country Reports on the main areas and
and priorities of German energy policy continue to be
2. valid.

The Government Declaration of 24 November 1980 announced that the Federal Government would publish the Third Revision of its Energy Policy Programme in 1981. Work on this Revision of the Energy Policy Programme will probably be completed in the second half of this year. As things stand, the revised Energy Programme will include the following measures and priorities:

- in the field of energy conservation
  - the promotion programme for investment designed to save heating energy in existing buildings is to be continued and restructured;
  - heating insulation standards for new buildings are to be raised;
  - specific fuel consumption of motor vehicles is to be reduced;
- promotion of district heating;
- use of industrial waste heat;
- promotion of the utilization of liquified gas in transport;
- accelerated substitution of coal for oil, especially in transport, power stations and industry;
- optimum utilization of hard coal;
- promotion of coal conversion;
- improvement in conditions for power station construction, in particular by speeding up approval procedures for power stations and achieving progress in nuclear waste disposal;
- improvement in contingency planning measures.

3. No changes

4. The implementation of most of the recommendations in the 1980 Review is under way or being prepared (establishment of energy production capacities in line with forecasts, increase in motor vehicle taxes, promotion of district heating and utilization of waste heat, investment programme for energy conservation measures in Federal Government buildings, implementation of a coal conversion programme, opening the German market to coal imports, pursuing the programme on nuclear waste disposal). Attempts are also being made to achieve the aims of the remaining recommendations (introduction of a system for monitoring energy conservation and oil substitution following appropriate studies; lower speeds on motorways as a result of the impact of higher fuel prices; increased fuel efficiency of motor vehicles through enhanced competition between producers as well as through agreements; gas utilization, especially in households, is stimulated via the market and is supported by forecasts on the extension of regional gas networks).

5. Cf. remarks in the relevant chapters.

F. Resolution with Social, Environmental, Safety Issues

Cf. E above, paras 1 and 2. The Federal Government is preparing a scheme for accelerating the approval procedure for the construction of power stations.

G. Energy Pricing/Fiscal Regime

The appropriate section in the 1980 country reply applies unchanged. In addition, an increase in the mineral oil tax of 7 Pfennigs/litre for petrol and 3 Pfennigs/litre for diesel fuel (excl. VAT) came into effect on 1 April 1981.

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H. Energy Conservation

1. vid. Annex 13 (Table 8)

   Figures include budget appropriations of the Federal Government, as well as a rough estimate of those of the Federal Laender, for energy conservation measures.

   Figures show that budget appropriations for 1980 are up on 1979 in the following areas in particular:

   - industry
   - offices and commerce
   - research and development.

2. Programmes described before continue to run.

   The guidelines for the "Programme for energy conservation in industry" were revised in December 1980. The grant towards advisory services for energy conservation in industry is now graded according to a company's turnover and may total up to 75 %.

   On 8 April 1981 the Federal Government decided to set up a special programme for interest-subsidized investment loans (volume: DM 6.3 billion). The programme focuses on energy conservation projects. It started operating in May 1981.

3. The car industry continues to make substantial headway in lowering fuel consumption of motor vehicles (originally agreed objective: 10 to 12 % by 1985). This target is likely to be exceeded. The car industry is now even aiming at a 15 % improvement by 1985.

   On 1 April 1981 mineral oil tax was raised by 7 Pfennigs/litre for petrol and by 3 Pfennigs/litre for diesel fuel. Apart from making motorists even more aware of the need to save fuel, this measure will favour the trend towards the more economical diesel-engined vehicles.

Total public expenditure (by Federal Government, Laender and local authorities) on public transport (Federal Railways, local passenge transport) amounted to DM 22.3 billion in 1979. No figures are as yet available for 1980 and 1981.

4. The extension of the enabling provisions of the 1976 Energy Conservation Act announced in the previous report, came into force on 20 June 1980. On this basis, the "Ordinance on consumption-based invoicing of room heating and water heating costs" took effect on 1 March 1981. It is designed to prevent fixed-sum cost distribution in the future and thus create an incentive for the economical use of heating energy and hot water.

   As from 1.7.1981 new buildings must be equipped with the necessary measuring instruments, existing buildings must be equipped by the 30.6.1984.

   Issued in 1977, the Thermal insulation ordinance contains minimum requirements for thermal insulation of buildings. A review aimed at expanding thermal insulation measures is in progress.

5. Electricity tariffs applicable to regular customers are subject to approval by the Electricity Tariffs Supervision Authorities of the Federal Laender. The Government does not influence load control. Electricity utilities endeavour, however, to minimize peak loads by pursuing the appropriate pricing policy when concluding special contracts (mainly with industry). Special contracts between electricity utilities and special customers are in principle free from state restrictions, but they are subject to the provisions of Cartel Law.

The extension of district heating is promoted by means of:

- a 7.5 % investment allowance on the basis of para. 4 of the Investment Allowance Law;
- grants of up to 35 % under the Programme of Investment for the Future;
- aids under the Energy Conservation Act for the conversion of heating plant to district heating;
- grants to coal-fired cogeneration stations under the Power Generation Laws.

Aids are only granted for cogeneration and for utilization of industrial waste heat and refuse. The Federal Government intends to maintain its massive support for the extension of district heating after the Programme of Investment for the Future expires in 1981. The follow-up programme is to have a volume of DM 1.2 billion (the Federal Government and the Laender each paying half) and run for five years. In this way investment of ove DM 5 billion could be mobilized. An agreement to this effect is to be signed shortly by the Federal Government and the Laender.

I. Interfuel Substitution

1. In 1980 electricity generation from oil was less than 7 % and only 4.7 % in electricity utilities. As a result of the Power Generation Laws, which favour the use of Community coal, the construction of new oil-fired power stations has practically been banned for years with the exception of gas turbines for peak-load periods. Sharp price increases for heavy heating oil have led the electricity utilities to operate oil-fired power stations only in those instances where there is no alternative. In order to accelerate this displacement of oil, the Federal Government intends to submit a bill to the Bundestag that will ban after a transitional period the utilization of oil in power stations, with a few exceptions for technical reasons.

2. Substitution of oil in electricity production

cf. paras 1 and 3

Substitution of oil in industry and other sectors

In industry, other sectors of the economy and households, oil is used primarily for the production of process heat and room heating.

With very few exceptions, coal is the alternative fuel in industry if only for reasons of cost. Here the process of substitution started quite some time ago and has made rapid progress, especially in the energy intensive sectors. In 1980 consumption of heavy heating oil in industry dropped by 9 %, while total primary energy consumption fell by 4 %. Substitution in industry is facilitated as imported coal can be used to a larger extent.

3. With very few exceptions, electricity does not play a major role in industry as an alternative to oil. In households, trade and commerce, and public buildings electricity can displace oil by means of electric heat pumps and night storage heaters. This applies in particular to the sparsely populated areas outside the urban centres where the supply of gas or district heating would be uneconomical and electricity therefore is the only alternative to heating oil. The extent of the displacement achieved depends primarily on the development of heat pumps in terms of cost and reliability, electricity prices and the extension of the electricity network, in particular the low-voltage grid.

4. The capacity of conversion plants in the Federal Republic of Germany was increased from 19.0 million t at the end of 1975 to 31.1 million t at the end of 1980. As a result, the share of conversion capacity in distillation capacity went up from 12.1 % to 20.7 % over this period. Foreseeable displacements in consumption patterns will necessitate further adjustments in production patterns. The mineral oil industry is planning to raise its conversion capacity by another 10 million t by 1990 to reach 41.4 million t or 27.9 % of distillation capacity. These adjustments are viewed by the Federal Government as a task that must be performed by the mineral oil industry itself and does not require supporting energy policy measures.

J. Coal Policies

Coal Utilization

1. - Construction of new oil-fired power stations is banned; measures to displace the remaining oil from power stations (share of oil in 1980: 4.7 %) are under consideration.

   - The utilization of coal for electricity generation is basically promoted by means of the Third Power Generation Law.
   More specifically, this means:
   Long-term contracts (until 1995) between the mining industry and the electricity industry, and the legal provisions of the Third Power Generation Law ensure coal sales equivalent to roughly 640 million tce to power stations during the 1981-1995 period. The costs involved in securing energy supply through increased coal utilization and oil displacement are borne by electricity consumers in the form of a "Coal Levy".

The specific aims of financial aid from this compensatory levy are:

- Compensation to offset the price difference with heavy heating oil (on average about 22 million tce p.a.);
- Compensation to cover the difference with the average price of imported coal free power station (on average about 11 million tce p.a.; thus all power station operators receive this amount of coal at the same price, towards which they must pay DM 6/tce themselves);
- For the volume exceeding 33 million tce p.a. power station operators receive coupons entitling them to imported coal at a ratio of 2:1 (Community coal to third country coal) from 1981 to 1987 and at a ratio of 1:1 after 1988. Access to imported coal is limited, the Coal Tariff Quota Law fixing import ceilings. Quotas are

1981 - 1985	20 million t
1986 - 1990	40 million t
1991 - 1995	60 million t.

It is left to the power station operators to decide how much of their quotas they wish to use in any quota period.

- Investment grants for the construction of new coal-fired power stations (DM 180/kW) and new coal-fired combined heat and power stations (DM 180/kW plus premium) and for the conversion of oil-fired combined heat and power stations to coal firing.
- Special aids for the sale of coal with lower burning quality (low-grade coal, low-volatile coal) and for peripheral pits (outside the Ruhr area).

- If at all, oil is basically only used in dual fired power stations during peak-load periods or to bridge a temporary shut-down of other power stations.

- In the framework of supraregional planning procedures by the Laender and the utilities, sufficient sites have been designated for new coal-fired power stations.
- German coal is in any case supplied on the basis of long-term contracts (vid. above). In the field of imported coal more and more firms are concluding long-term contracts or participate in foreign coal mines. However, substantial losses of coal supplies from Poland have given rise to some concern on the market; these losses have had to be partially offset on the spot markets. On account of strikes in Australia and the U.S. and the generally known infrastructure problems this could not always be done without difficulty.
- The construction of combined heat/power stations in industry has been promoted for some considerable time in the framework of general structural promotion schemes (Investment Allowance Law). The new district heating programme, for which Federal Government and Laender will each make DM 600 million available until the end of 1985, will make even more selective promotion possible in this field too.
- Coal research - unchanged from last year.

2. The competitive situation of coal is now characterized in all areas by a substantial cost advantage, in terms of calorific value, compared with heating oil. In the power generation sector, disadvantages in terms of investment and handling - if they continue to exist despite the above cost advantage - are offset by means of grants (vid. above).

In the industrial sector, the DM 6.3 billion programme of the "Kreditanstalt für Wiederaufbau" offers interest-subsidized loans for energy investment, particularly to small and medium-size companies. Existing differences in transport rates for EC coal and third country coal are to be eliminated.

Substitution has so far been most successful in the stones and clays industry. The following reasons may be quoted for the slower penetration of coal in other industries:

- small share of energy cost in final products;
- oil-fired installations have not yet been written off in full;
- increased environmental problems (especially higher cost of environmental protection) involved in coal use;
- technological requirements as regards the primary energy source;
- lack of infrastructure (storage facilities etc.).

The Federal Government and industry are taking joint steps, however, to ensure that more consideration is given to coal, especially imported coal, in corporate energy planning. Industry has recently reached an agreement in principle on cooperation between the individual sectors of industry (electricity utilities, company-owned power plants, energy consuming industry) in a heating network.

3. For a number of years the Federal Government has given financial backing to the development of new and improved uses of hard coal and lignite. The main areas of interest - apart from the programmes described in section J.4. - are

   a) Power station technologies
   Further developments are made necessary by the demand for improved environmental protection and for greater fuel efficiency. At present, three new concepts are being developed for coal-fired power stations:

   - power station with coal pressure gasification;
   - power station with pressurized fluidized bed combustion;
   - VEW coal conversion process.

All processes aim at

- making costly flue gas desulphurization superfluous. Sulphur is removed before combustion or fixed in the ashes during combustion.
- making the gas turbine suitable for hard coal in order to raise efficiency over the 40 % mark by making use of the combined gas/steam turbine process.

The concept of a coal-fired pressure gasification power station has already been realized in a 170 MW prototype plant in Lünen.

A pilot plant is operating in England under the aegis of the International Energy Agency. The plant has a thermal capacity of 85 MW. The participants in the project are Great Britain, the United States and the Federal Republic of Germany. The U.S. has declared it can no longer participate in the project. Negotiations are taking place on its continuation.

A pilot plant with a throughput of 1 t/h using the VEW coal conversion process has operated successfully. A decision on the construction of a pilot plant with a throughput of 10 t/h will be taken in the near future.

In order to facilitate the further development and improvement of conventional power station technology a number of projects are promoted under the section "non-polluting hard-coal-fired power stations"; these include in particular desulphurization, nitrogen oxide reduction and dedusting. The largest project is the Völklingen pilot power station (200 MW). These technologies can be exploited commercially in the near future.

Future development

By the mid-80s it will be possible to build prototype power stations using coal pressure gasification and the coal conversion process.

Large-scale demonstration plants (over 350 MW) will not be built until the second half of the 80s.

A similar scenario applies to pressurized fluidized bed combustion However, the technical problems still attached to the use of this technology in large power stations make it difficult to indicate when it will be ready for commercial use.

b) Atmospheric fluidized bed combustion

Atmospheric fluidized bed combustion technology can be applied in district heating, local heating plants and industrial steam generators.

Some prototypes of various sizes are operating successfully. Another one is in the planning stage. Thermal capacity ranges from 6 to 120 MW. This technology can be expected to spread fast in the first half of the 80s.

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c) Form coke

In order to include non-caking coal in the production of coke, form coke processes are being developed. Since form coke is produced in a closed process constraints on the environment will be reduced noticeably.

In the Federal Republic of Germany two processes are being applied in large-scale projects.

From 1975 until mid-1978 a pilot plant (15 t/h) was operated using the process developed by "Bergbau-Forschung/Lurgi". The plant, which was designed for the input of high-volatile coal, was closed down owing to technical problems.

For low-volatile coal the Ancit process was developed, designed primarily for the production of smokeless briquettes for residential heating, but also suited for the production of blast furnace coke. Optimization of the test plant (10 t/h) has been completed.

In the period 1977-1980 the programmes listed under a), b) and c) received Federal Government aid totalling around DM 380m.

4. On 30 January 1980 the Federal Government adopted a programme for the commercialization of coal conversion, under which coal gasification and liquefaction is to be introduced on a large scale. Of 15 plants originally proposed by industry (12 coal gasification, 3 liquefaction projects) six coal gasification projects have now reached a stage where a decision on their realization can be taken in the next few months. The chances of the remaining coal gasification projects being realized cannot yet be finally assessed. As regards the liquefaction projects, basic planning studies (preliminary projects) are being carried out.

The six coal gasification installations will involve investment totalling roughly DM 3 billion and the utilization of around 2 million t/a of German coal, around 2.5 million t/a of third country coal and around 1.5 million t/a of lignite.

The responsibility of setting up these plants lies with private industry. As a result it must bear a substantial share of the costs and risks. To support the efforts by industry the Federal Government will take a decision in the coming months on state aid for coal gasification. The main possibility under consideration is an investment grant that is repayable in principle. Furthermore it is being examined whether compensation can be granted for a limited period to offset the difference in price between German and third country coal. About DM 800 million are earmarked in the Federal budget until 1984 for the promotion of large-scale coal gasification plants.

Besides the commercialization programme, research, development and trial activities in the field of coal conversion will be continued. The next concrete objective is to put two coal liquefaction pilot plants with a coal throughput of 200 t and 6 t/day into operation by the autumn of 1981.

5. The Federal Government considers the secure and adequate supply of energy and the protection of the environment to be equal and compatible objectives of its policy.

When coal and lignite are used for power generation, the requirements of environmental protection are met in particular by having recourse to clean combustion processes (e.g. development of fluidized bed combustion) and to efficient flue gas dedusting and desulphurization processes.

Open-cast lignite mining, too, very much serves the interests of environmental protection.

Coal Mining

6. No changes.
7. No changes.
8. -
9. -
10. No changes.
11. No changes.

Coal Transportation

12. and 13. The infrastructure of the various transport systems in the Federal Republic (ports, railways, waterways, roads) is of a high standard and could cope with a perceptible increase in coal transportation without requiring major investment.

Lignite is used practically exclusively in power stations in the immediate vicinity of the pits; transport by rail or conveyor belt is carried out by the companies involved.

Coal from domestic mines is used predominantly for power generation and in the steel industry near the pits; no new lines of communication are required here. The same applies - even if volumes increase - for supplies to other destinations at home and abroad.

Growing demand for imported coal is not expected to give rise to difficulties as regards handling the coal in the ports and transporting it to destinations inland. At present, unused capacities are still available for these purposes. The necessary expansions/adjustments would be made in good time. Merely a sudden - unexpected rise in imports might cause temporary bottlenecks.

International Coal Trade

14. The situation on the coal market of the Federal Republic and the opportunities for German companies abroad to promote world coal trade are in line with points 22 to 25 of the Annex to Principles for IEA Action on Coal. Special reference is made here to the new and sharply expanded long-term arrangements for coal imports, which, although they declare the use of domestic coal a priority, allow a steady increase in the volume of imports and offer German industry the opportunity to conclude the necessary long-term supply contracts or participation agreements on the world coal market.

K. Natural Gas Trade and Utilization

1. Apart from domestic production which currently has a 30 % share in the total natural gas requirement, the Federal Republic of Germany has to rely on increasing imports. 70 % is imported, of which 17 % is supplied by the USSR. The supply risk is reduced by securing as many sources of supply as possible and by focussing on Western supplying countries. Currently 87 % of Germany's supply of natural gas - including domestic production - is obtained from Western Europe.

   The Federal Government supports German importers' endeavours to ensure that the prices in the international gas trade are realistic, in that they also take the sales possibilities on the consumer energy markets into account.

2. and 3. During the past two years, utilization of natural gas by households and small-scale consumers has increased significantly, whereas consumption in large-scale boiler plants, in particular in power stations is declining. This corresponds to the guidelines set out in the Federal Government's energy policy.

   Natural gas prices rose considerably in 1980 - mainly on account of increases in import prices. A further above-average increase in prices is to be expected for 1981.

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L. Nuclear

1. Assessment of the necessity for a further extension of nuclear energy has not changed against that in the preceding reporting period. In order to ensure that the nuclear power stations,which are required for energy policy reasons, can be completed in time, the Federal Government has initiated a review of the approval procedures aimed at accelerating the procedures without neglecting safety or third party rights.

   This review encompasses all sectors and institutions of the approval procedures.

   The findings of this review will be available in summer this year and are subsequently to be implemented jointly with the Laender and industry.

2. No changes against the previous year.

M. New Energy Technologies

1. and 2.: No changes against the previous year.

N. Enhanced Production and Improved Investment Climate

1. There are no exploration incentives in the area of the Federal Republic of Germany. Up to 1981, DEMINEX is receiving loans - repayable under certain conditions - and grants from Federal funds for projects outside the area to which the Basic Law applies.
2. There are no national oil companies in the Federal Republic of Germany.
3. No data available.
4. There are no legal regulations on the exploitation of German crude oil reserves. Decisions on this subject lie within the responsibility of the private oil companies.

- 34 -

5. Energy Investments

The table below contains mainly data compiled by the Ifo-Institut für Wirtschaftsforschung in München on the basis of enquiries (position in September 1980). Only in certain sectors have official statistical figures been included. It is thus not an official statistics. The figures will presumably be revised in autumn this year.

Expenditure on Investment in the Energy Sector
in million DM

		estimated actual values		estimated target values
		1978	1979	1980
Solid Fuels				
hard coal[1]	production	2,050	2,480	3,200
	distribution channels		925	980
lignite	production	649	585	800
Total		2,699	3,990	4,980
Oil and Gas	exploration production	674	953	953
crude oil	distribution channels	1,235	1,013	1,488
natural gas	distribution channels	2,365	2,953	3,067
Total		4,274	4,925	5,508
Electricity				
nuclear power	nuclear fuel cycle[2]		28	44
total electricity generation		3,640	2,700	4,740
service and distribution networks		5,270	5,480	6,120
Total		8,910	8,208	10,904
District Heating Plants				
production		165	216	248
routes and connections		336	510	820
Total		501	726	1,065
Grand Total		10,384	17,849	22,457

---

1) Total investment .... approximately DM 110 million
2) Excluding exploration, production and waste disposal

The statistics are based on the following definitions:

- Expenditure on investment
  - estimated at current prices, excluding discounts and/ tax deductions
- Investments
  - new capital goods, additions made during the calendar year, in-bought goods and services or own production, to be used in production processes for a period longer than one year, if applicable, the value of the services contained in the capital goods;
  - certain goods and services which form part of the capital goods;
  - goods and services which form part of real estate such as the development costs of industrial sites, test and production drilling for crude oil and natural gas or the exploration of deposits.
- Data correspond to the value of the plants constructed during a particular year. Investment projects extending over several years are listed according to the value added in each year.

6. cf. comments on K. (Gas Import Policy) and M. (Coal Conversion).

[illegible] = SLT Data:
Part = 1:
Data Type =
Year = 1979
Submission Number:
Submitting Country: Germany

(To be put into telex format in final version)

TABLE 1a
INTERNATIONAL ENERGY PROGRAM
STANDING GROUP ON LONG TERM CO-OPERATION
(HISTORICAL YEAR)

ORGANISATION FOR ECONOMIC
CO-OPERATION AND DEVELOPMENT

COMBINED ENERGY STAFF

Energy Statistics and
Data Processing Division

Annex 1

Millions of metric tons oil equivalent (Mtoe)

		A COKING COAL	B OTHER COAL	C OTHERS SOLID FUELS	D TOTAL SOLID FUELS	E CRUDE OIL AND PETROLEUM PRODUCTS	F GAS	G NUCLEAR	H HYDRO	I GEO/SOLAR/WIND/ETC.	J ELECTRICITY	K HEAT	L TOTAL
SUPPLY													
Domestic Production	A				88,8	4,9	16,3	9,7	3,9	–			123,6
Imports	B				7,2	153,8	30,8				1,3		193,1
Exports (-)	C				- 19,0	- 6,7	- 0,3				- 1,3		- 27,3
Marine Bunkers (-)	D				–	- 2,9							- 2,9
Stock Changes (+ or -)	E				+ 3,9	- 4,3	- 0,6						- 1,0
Total Energy Requirements F = A + B - C - D ± E	F				80,9	144,8	46,2	9,7	3,9	–	0,0		285,5
TRANSFORMATION													
Electricity (-)	G				- 50,2	- 7,0	- 12,8	- 9,7	- 3,9		+ 31,9	+ 4,6	- 47,1
Gas (-)	H				- 0,2	- 0,4	+ 1,0						+ 0,4
Oil Refineries (-)	I					- 8,3					- 0,4		- 8,7
Liquids Derived from gas and Liquids Derived from solids(-)	J												
Gases Derived from Solids(-)	K				- 4,7		+ 4,3						—
Other Energy Sector and losses (-)	L				- 7,1	- 1,8	- 6,1				- 5,0	- 0,6	- 20,6
Total Final Consumption	M				18,2	107,5	28,1				26,5	4,0	184,3
CONSUMPTION BY SECTOR													
INDUSTRY TOTAL	N				12,0	19,5	14,8				13,0	1,1	60,4
Petrochemical and chemical					1,2	2,7	3,9				3,7	0,4	11,9
of which feedstocks use													
Non-metalic mineral products					1,0	3,4	1,3				0,8		6,3
Iron & Steel					8,1	2,4	3,1				1,8		15,4
Non-ferrous metals					0,3	0,4	0,5				1,4		2,6
Others					1,4	10,6	6,0				5,3	0,7	24,0
TRANSPORT TOTAL	O				0,1	38,2					0,9		39,2
Road						33,9							33,9
Others					0,1	4,3					0,9		5,3
OTHER SECTORS TOTAL	P				6,1	49,8	13,3				12,7	2,9	84,8
Agriculture													
Res/Com/Pub Service													
of which district heating													2,9
Other													
OTHER NON-ENERGY USE	Q				0,5	19,8	4,5						24,8
ELECTRICITY													
Generated (TWh)	X				204,1	27,7	79,6	42,3	18,5				372,2
Capacity (GW)	Y				49,3	10,5	13,1	9,3	6,5				87,2

Prepared by :
Address :
Telephone :
Telex :
Date of Transmission :

	GDP (IN 1975 PRICES)		GDP IN US DOLLARS (AT 1975 EXCHANGE RATE)		POPULATION (MILLIONS)
AA	1211,9	AB	492,0	AC	61,4

Questionnaire - SLT Data:
Part - I:
Data Type -
Year - 1980 *)
Submission Number:
Submitting Country: Germany

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TABLE 1a
INTERNATIONAL ENERGY PROGRAM
STANDING GROUP ON LONG TERM CO-OPERATION
(HISTORICAL YEAR)

Annex 2

ORGANISATION FOR ECONOMIC
CO-OPERATION AND DEVELOPMENT

COMBINED ENERGY STAFF

Energy Statistics and
Data Processing Division

Millions of metric tons oil equivalent (Mtoe)

		A COKING COAL	B OTHER COAL	C OTHERS SOLID FUELS	D TOTAL SOLID FUELS	E CRUDE OIL AND PETROLEUM PRODUCTS	F GAS	G NUCLEAR	H HYDRO	I GEO/ SOLAR/ WIND/ETC.	J ELECTRICITY	K HEAT	L TOTAL
SUPPLY													
Domestic Production	A				84,7	4,7	19,6	10,4	4,0				123,4
Imports	B				2,4	148,0	32,7				4,7		157,6
Exports (-)	C				- 14,4	- 3,3	- 2,0				- 4,2		- 23,9
Marine Bunkers (-)	D					- 2,9							- 2,9
Stock Changes (+ or -)	E				- 0,7	- 4,3	- 0,3						- 5,3
Total Energy Requirements F = A + B - C - D ± E	F				83,0	129,8	45,0	10,4	4,0		0,5		272,9
TRANSFORMATION													
Electricity (-)	G												
Gas (-)	H												
Oil Refineries (-)	I												
Liquids Derived from gas and Liquids Derived from solids(-)	J												
Gases Derived from Solids(-)	K												
Other Energy Sector and losses (-)	L												
Total Final Consumption	M												
CONSUMPTION BY SECTOR													
Industry Total	N												
Petrochemical and chemical													
of which feedstocks use													
Non-metallic mineral products													
Iron & Steel													
Non-ferrous metals													
Others													
TRANSPORT TOTAL	O												
Road													
Others													
OTHER SECTORS TOTAL	P												
Agriculture													
Res/Comm/Pub Service													
of which district heating													
Other													
OTHER NON-ENERGY USE	Q												
ELECTRICITY													
Generated (TWh)	X				219,6	25,4	41,3	43,7	13,7				3[illegible]
[illegible]	Y				43,7	19,8	13,1	9,1	6,5				+7,[illegible]

	GDP (IN 1975 PRICES)		[illegible] (AT 1975 EXCHANGE RATE)		[illegible]
AA	1234,6	[illegible]	234,2	[illegible]	61,6

[illegible] :
[illegible] :
[illegible] :
[illegible] :
[illegible] :

*) Preliminary

Questionnaire - ... Data:
Part = 1;
Data Type =
Year = 1985
Submission Number:
Submitting Country: Germany

(To be put into telex format in final version)

TABLE 1b
INTERNATIONAL ENERGY PROGRAM
STANDING GROUP ON LONG TERM CO-OPERATION
(FORECAST YEARS)

Annex

ORGANISATION FOR ECONOMIC
CO-OPERATION AND DEVELOPMENT

COMBINED ENERGY STAFF

Energy Statistics and
Data Processing Division

3rd Revision

Millions of metric tons oil equivalent (mtoe)

		A COKING COAL	B OTHER COAL	C OTHERS SOLID FUELS	D TOTAL SOLID FUELS	E CRUDE OIL AND PETROLEUM PRODUCTS	F GAS	G NUCLEAR	H HYDRO	I GEO/ SOLAR/ WIND/ETC.	J ELECTRICITY	K HEAT	L TOTAL
SUPPLY													
Domestic Production	A				87	5	15	25	4				136
Imports	B				8	137	36						181
Exports (-)	C				9	6							15
Marine bunkers (-)	D					3							3
Stock Changes (+ or -)	E												
Total Energy Requirements F = A + B + C - D ± E	F				86	133	51	25	4				299
TRANSFORMATION													
Electricity (-)	G				- 53	- 5	- 13	- 25	- 4		+ 38	+ 6	- 56
Heat (-)	H												
Oil Refineries (-)	I					- 8							- 8
Liquids derived from gas and from solids (-)	J												
Gases derived from solids (-)	K				- 4		+ 4						0
Other Energy Sector and losses (-)	L				- 9	- 2					- 5		- 16
Total final consumption	M				19	57	38				23	6	195
CONSUMPTION BY SECTOR													
Industry total	N				15	14	22				15	2	68
Petrochemical and chemical feedstocks													
Other													
TRANSPORT TOTAL	O					41					1		42
OTHER SECTORS TOTAL	P				4	42	18				17	4	85
NON-ENERGY USE	Q				1	21	2						24
ELECTRICITY													
Generation (TWh)	X				225	25	62	107	19				438
Capacity (GW)	Y				49	15	14	19	7				104

	GDP (IN 1975 PRICES)		GDP IN US DOLLARS (AT 1975 EXCHANGE RATE)		POPULATION (MILLIONS)
AA	1 454	AB	589	AC	59,8

Prepared by = Gerke
Address = Bonn
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Date of transmission =

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Data Type =
Year = 1990
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Submitting Country: Germany

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TABLE 1b
INTERNATIONAL ENERGY PROGRAM
STANDING GROUP ON LONG TERM CO-OPERATION
(FORECAST YEARS)

- Annex 4

ORGANISATION FOR ECONOMIC
CO-OPERATION AND DEVELOPMENT

COMBINED ENERGY STAFF

Energy Statistics and
Data Processing Division

millions of metric tons oil equivalent (Mtoe)

		A COKING COAL	B OTHER COAL	C OTHERS SOLID FUELS	D TOTAL SOLID FUELS	E CRUDE OIL AND PETROLEUM PRODUCTS	F GAS	G NUCLEAR	H HYDRO	I GEO/SOLAR/WIND/ETC.	J ELECTRICITY	K HEAT	L TOTAL
SUPPLY													
Domestic Production	A				89	4	15	38	4				150
Imports	B				15	131	37						183
Exports (-)	C				7	6							13
Marine bunkers (-)	D					3							3
Stock Changes (+ or -)	E												
Total Energy Requirements F = A + B - C - D ± E	F				97	126	52	38	4				317
TRANSFORMATION													
Electricity (-)	G				- 61	- 4	-11	- 38	- 4		+ 45	+ 7	- 66
Gas (-)	H												
Oil refineries (-)	I					- 8							- 8
Liquids derived from gas and from solids (-)	J												
Gases derived from solids (-)	K				- 3		+ 3						0
Other Energy Sector and Losses (-)	L				- 12	- 2					- 6		- 20
Total Final Consumption	M				21	112	44				39	7	223
CONSUMPTION BY SECTOR Industry Total	N				17	13	24				18	1	73
- Petrochemical and chemical feedstocks													
- Other													
TRANSPORT TOTAL	O					40					1		41
OTHER SECTORS TOTAL	P				3	36	18				20	6	83
NON-ENERGY USE	Q				1	23	2						26
ELECTRICITY Generated (TWh)	X				264	18	52	164	19				517
Capacity (GW)	Y				54	14	14	26	7				115

Prepared by = Gerke :
Address = Bonn :
Telephone = 615-4243 :
Telex = 886 747 :
Date of transmission = :

	GDP (IN 1975 PRICES)		GDP IN US DOLLARS (AT 1975 EXCHANGE RATE)		POPULATION (MILLIONS)
AA	1 678	AB	679	AC	58,9

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art = 1:
ata Type =
ear = 1995
ubmission Number:
ubmitting Country: Germany

(To be put into [illegible] format in final version)

TABLE 1b
INTERNATIONAL ENERGY PROGRAM
STANDING GROUP ON LONG TERM CO-OPERATION
(FORECAST YEARS)

Annex 5

ORGANISATION FOR ECONOMIC
CO-OPERATION AND DEVELOPMENT

COMBINED ENERGY STAFF

Energy Statistics and
Data Processing Division

Millions of metric tons oil equivalent (Mtoe)

		A COKING COAL	B OTHER COAL	C OTHER SOLID FUELS	D TOTAL SOLID FUELS	E CRUDE OIL AND PETROLEUM PRODUCTS	F GAS	G NUCLEAR	H HYDRO	I GEO/ SOLAR/ WIND/ETC.	J ELECTRICITY	K HEAT	L TOTAL
UPPLY													
omestic Production	A				90	4	15	57	5				171
mports	B				19	126	38						183
xports (-)	C				5	6							11
arine Bunkers (-)	D												
tock Changes (+ or -)	E												
otal Energy Requirements F = A + B - C - D ± E	F				104	119	53	57	5				339
RANSFORMATION													
lectricity (-)	G				- 64	- 2	- 9	- 57	- 5		+ 51	+ 8	- 72
as (-)	H												
il Refineries (-)	I					- 6							- 6
iquids Derived from gas and from solids (-)	J				- 2	+ 1							- 1
ases derived from solids (-)	K				- 5		+ 1						- 2
ther Energy Sector and Losses (-)	L				- 11	- 3					- 7		- 20
otal Final Consumption	M				21	85	45				44	8	203
ONSUMPTION BY SECTOR													
NDUSTRY TOTAL	N				18	11	27				21	2	79
Petrochemical and chemical													
Feedstocks													
Other													
RANSPORT TOTAL	O					40					1		41
THER SECTORS TOTAL	P				3	34	18				22	6	83
ON-ENERGY USE	Q				1	25	2						28
LECTRICITY													
Generated (TWh)	X				275	10	40	248	30				603
Capacity (GW)	Y				59	10	13	38	7				127

repared by = Gerke
ddress = Bonn
elephone = 615-4243
elex = 886 747
ate of transmission =

	GDP (IN 1975 PRICES)		GDP IN US DOLLARS (AT 1975 EXCHANGE RATES)		POPULATION (MILLIONS)
AA	1 326	AB	780	AC	57,7

Table 2

Forecast Production of Oil, Natural Gas and Coal (Mtoe)

		1980	1985	1990
Conventional Oil:				
- existing fields				
- enhanced recovery				
- discovered fields				
- undiscovered fields				
of which frontier				
Total		4,7	4	n.a.
Non-conventional oil:				
- oil sands				
- oil shale				
- coal liquefaction				
Total		no	no	no
Conventional gas:				
- existing fields		14,2	13	13
- discovered fields		0	3	3
- undiscovered fields			(2)	(2)
of which frontier				
Total		14,2	16	16
Non-conventional gas:		no	no	1,4 Mtoe
- coal gasification				
Coal:	- brown coal	25,4	24,5	24,5
	- hard coal	60,4	63-66,5	66,5
- existing mines				
- mines under development				
- future development				
- existing capacity to be closed down				
Total		85,8	87,5-91,0	91,0

Note Definitions are not exactly the same as those in table 1.

W/0650H

Table 3

Imports and Exports of Coal, Natural Gas and Non-Conventional Oil
(Mtoe)

	Trading Country (Origin or Destination)	1985(1)		1990(1)		1995	
		Amount under contract	Amount not contracted	Amount under contract	Amount not contracted	Amount under contract	Amount not contracted
Coal:							
Natural Gas:	Import	48	1	48	1	39	8
Non-Conventional Oil:		n.a.		n.a.		n.a.	

---

1) The sum of import amount under contract and projected should equal the number shown in cell BD (BA, BB & BC) for coal and BF for gas for 1985 and 1990. The sum of export amount under contract and planned should equal the number shown in cell CD (CA, CB & CC) for coal and cell CF for gas for 1985 and 1990.

Annex 8

TABLE 4

Status of Electricity Capacity (GW) as at 31 December 1980

	Nuclear	Hydro/Geo	Coal	Oil	Gas	Multi firing		Other	Tot
						using oil 1)	not using oil		
I. 1980									
(1) Operating :	9,0	6,5	29,6	14,7	13,5	13,3	-	0,8	87.4
II. 1980-1985									
(1) Capacity currently under construction	9,9	0,3	5,6	0,8	0,4	-	-	0,2	17,2
(2) Capacity authorised and site confirmed)	-	-	1,7	-	-	-	-	-	1,7
(3) Other planned capacity)									
(4) Conversion to other fuel *)									
(5) Operating capacity to be decommissioned 1981-1985	Abbau zwischen 400 und 600 MW pro Jahr								
(6) Total operating in 1985	18,9²⁾	6,7	35,0	14,9	14,0	13,3		1,0	103,8
III. 1986-1990									
(1) capacity currently under construction	1,3	0,1	0,7	-	-	-		-	2,1
(2) capacity authorised and site confirmed)	10,0	-	8,3	-	-	-		-	18,3
(3) Other planned capacity)									
(4) Conversion to other fuel *	-		3,0			-3,0			
(5) operating capacity to be decommissioned 1986-1990	ca. 600 MW pro Jahr								
(6) Total operating in 1990	26,5	6,7	43,0	14,0	14,0	10,0		1,1	115,3
IV. Capacity in operation in the year 1995	38,0	7,5	46,5	10,0	12,5	10,0		1,4	125,9

* Converted plant should appear with a negative sign (-)

1) Steinkohlemischfeuerung
2) einschl. Prototypen THTR, Kalkar

Table 5

Remaining Oil, Natural Gas, Coal and Uranium Reserves(1)

	Proven Reserves end of 1980	Probable Reserves end of 1980	Possible Reserves end of 1980	Estimate of Remaining Undiscovered Reserves (2) High	Medium	Low
Oil:						
onshore	64,0 Mio to	45,8 Mio to	18,2 Mio to		n.a.	
offshore	--	--	--			
Total	64,0 Mio to	45,8 Mio to	18,2 Mio to		(Source: WEG-Jahresbericht 1980)	
Gas:						
onshore	293 Mrd cm^3	175 Mrd cm^3	118 Mrd cm^3		(Source: Niedersächsisches Landesamt für Bodenforschung)	
offshore	---	---	---			
Total	293 Mrd cm^3	175 Mrd cm^3	118 Mrd cm^3			
Coal:						
Divide into main types		/see annex 10 7				
Total						
Uranium						
Divide into categories if appropriate						
Total	5000 tu	reasonably assured		8500 tu	estimated additional	

---

(1) Provide definition of reserve classification, including economic assumptions.
(2) High is 10% probability of existing; Medium is 50% probability of existing and Low 90% probability of existing.

Annex 10

Coal reserves

	in billion tce	
	hard coal	brown coal
Identified geological deposits (up to a depth of 1,500 m with a minimum seam thickness of 0.60 m)	230	17
of which under present conditions		
- technically recoverable	24	10
- economically recoverable	6	3

Table 6

Oil and Gas Exploration and Development(1)

	Exploration				Development			
	Metres Drilled	Wells Completed			Metres Drilled	Wells Completed		
		oil	gas	dry		oil	gas	dry
Onshore	140.389	8	9	15	91.159	57	6	3
Offshore	4.552	1	-	-	--	-	-	-
	144.941	9	9	15	91.159	57	6	3
Total 2)								
Frontier								

---

(1) This table should be completed for the most recent year for which there is data. If possible more detailed information, such as more specific geographical breakout and the reporting of these activities over the recent past, would be desirable.

(2) On and offshore activity should sum to 100% of total exploration and development activity.

Table 7

Demand and Supply for Nuclear Fuel Cycle Services for Reactors

	Natural Uranium (tonnes uranium)		Enrichment (10^3 tonnes SWU)		Reprocessing (tonnes heavy metal)		Spent Fuel Arisings/Storage (tonnes heavy metal)	
	1981-85	1986-90	1981-85	1986-90	1981-85	1986-90	1981-85	1986-90
equirements[1]								
Initial load nd reload	12-14	20-25	10-11	15-17			ca.1.600	ca.2.800
ontracts ncovered Demand					2,400			
otal Requirements	12-14	20-25	10-11	15-17	2.400		ca.1.600	ca.2.800
apacity/Production								
perating				400	25	25	ca.5.000	ca.9.000
ommitted			400	600	-	-		
lanned	-	-	-	-	350	350		
otal	-	-	400	1.000	375	375	ca.5000	ca.9000

---

1) Assumption for demand: 0.25% tails assay. Provide additional assumptions used for calculating demand such as: Reactor Mix; Load Factor Fg. Nat. U/MWE - YR for inventory and replacement loading; Kg SWE/MWE for the same conditions; and if U or PU recycle is assumed.

2) Indicate whether: At Reactor Sites (ARS), At Reprocessing Plants (ARP), or Away From Reactor (AFR)

/0650H

Table 8

Authorisation in public sector budgets for expenditure on energy saving[1] 1979-1981 (in national currency) = DM

Programme		Year	
	1979	1980	1981
1) Energy Saving in the home	875	920	
2) Energy Saving in industry[2]	285	418	
3) Energy Saving in agriculture	10	14	
4) Energy Saving in offices and in commerce	60	205	
5) Energy Saving in transport	-	-	
6) Information and education	22	25	
7) Research and development	140	210	
8) Total	1 392	1 792	

---

(1) To the extent possible, expenditure by local and regional authorities is included.

(2) Includes expenditure on demonstration projects.

Coal Use in Germany

Hard-coal use in Germany had declined significantly since 1960 as Germany, in common with other European countries, has moved from a solid fuel to hydrocarbon-based energy systems. In 1960, solid fuel comprised 75.3% of total energy consumed; by 1973 this had dropped to 31.1%.

The decline in the use of coal has been particularly noticeable in the areas of transportation and space heating; as recently as 1960 about 60% of railway requirements were met by via coal burning. Electrification and diesel motive power make any increased use of coal in transportation sector unlikely. Coal use for space heating has also declined. The reasons why space heating use is not likely to grow include:

- higher cost of coal-fired central heating systems;
- lack of chimneys on newer buildings;
- extensive storage requirements;
- lack of flexibility with coal central heating to provide year-long hot water.

As a household fuel, the heavy transportation, handling, and other distribution costs associated with coal make it a most unlikely substitute for hydro-carbons.

The use of coal may show an upturn in industrial areas, particularly in cement kilns. Hard coal is used in approximately 11% of Germany's cement kilns, although much higher penetration by coal has been achieved in other European countries -- 83%, in the UK; 61% in Denmark. Obstacles to increased coal use such as storage and handling would not seem to be a problem in the case of cement works; however, the cement industry itself is not in good economic shape. The largest customer for cement has been infrastructure public works spending and this has declined markedly over the last fifteen years. Cement manufacture tends to be monopolistic or oligopolistic, and such market organization reduces the cost-cutting incentive for fuel conversion.

The use of hard coal in industrial boilers is relatively low and unlikely to increase for the following reasons:

- equipment designed to burn hydrocarbons is not generally convertible to coal use;

- coal storage and handling equipment is both costly and requires extensive space at the factory sight;

- new coal-burning installations are from 2.5 to 5 times more expensive than hydrocarbon installations; and

-- many large industrial users, who would be potential users of coal, are still in a position to obtain natural gas under favorable long-term price contracts.

The coming of fluidized bed boilers may improve coal's prospects in the industrial area providing that the technology becomes standardized so as to reduce unit costs.

Power generation at present represents the largest market for hard coal in Germany and probably the only area in which coal may gain market share in the near future. Table 1 shows the growth in the period 1974-1980 for hard coal in power facilities. Growth in Germany has not been nearly as dramatic as it has been in other European countries.

Prepared August 24, 1981
KKJ

Table 1

Consumption of Hard Coal for power generation
(million metric tonnes)

	74	75	76	77	78	79	80
United Kingdom	65.7	74.8	80.8	82.9	83.2	91.4	92.1
W. Germany	36.7	27.3	33.3	32.8	35.1	38.2	39.9
France	11.6	12	17.7	20.1	22.2	24.4	24.5
Denmark	2.1	2.6	3.9	4.5	4.9	6.1	8.6
Belgium	3	2.6	3	4	4.4	4.7	5.3
Italy	1	0.7	1.2	1.8	2	3.6	4.9
E.E.C.	120.6	120.3	141.1	147.6	152.3	168.4	177

Source: Data Resources, Inc.

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Subject aircram was prepared by the U. S. Departm of Energy Bonn Representative Dr. Frank Goldner, and Embassy Economics Officer Bradford Miller. The main purpose of the aircram was to compile a brief summary of some of the key energy statistics and factors which affect the present and future energy policy in the Federal Republic of Germany.

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I EXECUTIVE SUMMARY

Introduction

Initial 1980 energy consumption data for West Germany indicate that for the first time since 1973, primary energy consumption declined compared to the previous year (391 million tons hard coal units, "mtSKE", compared to 408.2 mtSKE for 1979).* As reported by the Arbeitsgemeinschaft Energie - Bilanzen of Duesseldorf, the breakdown of the total primary energy consumption (PEC) in terms of the main primary energy sources was as follows:

	1979	1980	APPROXIMATE PERCENT CHANGE 1979/1980	% OF TOTAL FOR 1980
	(In million tons hard coal equivalent)			
Oil	206.8	187.0**	Minus 10	47.8
Hard Coal	75.8	77.0	Plus 2	19.7
Brown Coal	38.1	38.5	Plus 1	9.8
Natural Gas	65.3	64.5	Minus 1	16.5
Nuclear Energy	13.9	14.0	Plus 1	3.6
Hydro and Electricity Import	5.8	7.5	Plus 30	1.9
Other (wood, etc.)	2.5	2.5	--------	0.6
Total:	408.2 (11.4 quads)	391.0 (10.9 quads)	Minus 4%	100.0%

* 1 ton "SKE" equals 27.8 million BTU's

** 187 mtSKE is approximately 2.4 million barrels per day, oil equivalent

Figure 1.1 shows recent trends in main FRG primary energy consumption. The main cause for PEC reduction in 1980 is seen to be in the oil sector, where cut backs occurred in residential sector consumption of heating oil. The approximate FRG electrical energy generation situation is shown on Figure 1.2. The dominant role of hard and brown coal, the declining role of oil, and the increasing role of nuclear is shown. Subsequent sections of this paper will deal with present and future outlook for major primary energy forms and for electricity in Germany.

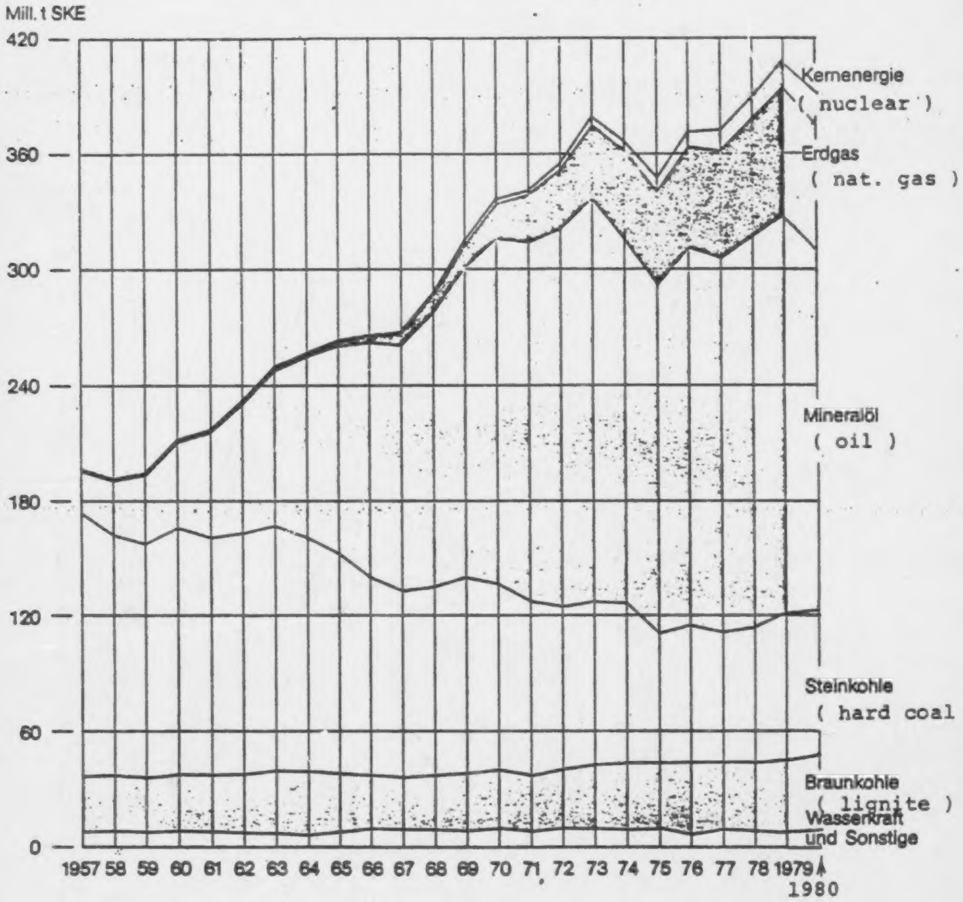
The last officially published FRG energy projections (December 1977) asserted an approximately 50% increase of primary energy consumption (PEC) by the year 2000. While no further official projections have been released so far, informal conversations with officials and press reports indicate projections for FRG PEC growth to year 2000 have undergone substantial downward revision since the end of 1977. Most high projections for PEC growth now appear at least 10% less than the previous government high case. A recent study by ESSO* forecasts a PEC of 510 mtSKE in 2000, a 30% increase over 1980 - but almost 20% less than the 600 mtSKE PEC for 2000 of the December 1977 forecast. For an extreme case, in the reduced future need direction, work of the Freiburg Öko Institute is noted which includes a no nuclear - low oil scenario showing a PEC in 2000 less than that of today!

It is an open question how much the 1979/80 dip in PEC reflects genuine conservation and restructuring of energy consumption patterns and how much is due to the economic recession. The answer is probably a mixture of the two which will see the percentage rate of growth in PEC less than the approximately 4% levels of the past two decades.

---

* Welt Energie Ausblick, December 1980

PRIMARY ENERGY CONSUMPTION IN GERMANY. 1957-1980



Ref: Steinkohle 1979/1980, Gesamtverband des Deutschen Steinkohlenbergbaus, October 1980 .

Figure 1.1

ELECTRICITY PRODUCTION OF GERMAN POWER PLANTS

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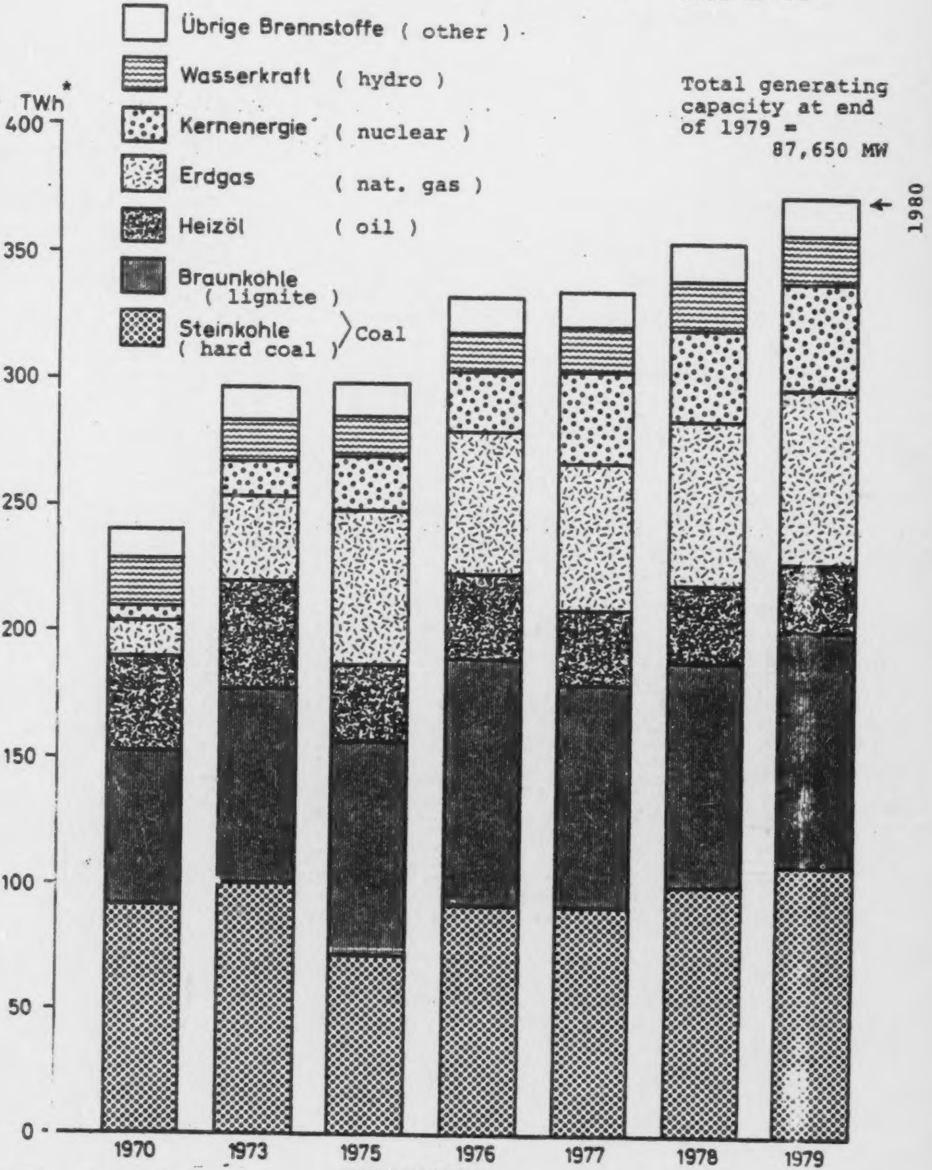

Total generating capacity at end of 1979 = 87,650 MW

* 1 TWh = 1 million KWh

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Figure 1.2

Conclusions

1. Coal

-- Coal will be of ever-increasing importance to future FRG energy needs, particularly in the electricity generation area, and possibly, sometime from now in the coal derived synthetics area.

-- As present German coal production appears close to maximum capability. Domestic coal probably would not be sufficient to meet projected increases in demand, thus opening the door to increased imports.

-- Provisions are now in place to allow significant expansion of coal imports as needed -- to the extent that domestic coal production is insufficient.

2. Nuclear Power Production

-- A nuclear capacity expansion of three times the present approximately 9,000 MW(e) by the early 1990's appears theoretically possible in Germany. However, the actual rate at which nuclear capacity growth will occur is difficult to assess due to uncertainties in the present German licensing process, as well as to lack of consensus as to the amount of expansion needed.

-- Significant contribution to the German energy situation from either of the two advanced German reactor concepts being developed (i.e., the SNR-300 and the THTR) appears doubtful until late in this century.

3. Oil

-- Germany must depend on imports for 95% of its oil requirement.

-- The Government's policy is to soften this dependency by diversifying the sourcing of oil, encouraging conservation, and promoting substitution away from oil.

-- Some success in reduction of oil consumption has been achieved to date by government programs. However, the major causes probably were the depressing influence of higher oil prices and economic recession.

-- A lower dependency on oil can only come about through widespread structural readjustments in the various sectors of the economy and through accelerated use of coal and nuclear derived energy.

4. Gas

-- The growth in demand for gas will continue to increase but at a much less rapid rate than in the last decade.

-- The sourcing of gas is a serious problem because of difficult international conditions and political uncertainties with a number of supplier nations.

-- Demand will remain strong for home and process heating, as well as for chemical feedstocks.

-- Gasification of hard coal will probably not be of commercial significance before the mid 1990's.

-- Gasification of brown coal (lignite) could occur sooner, if replacement for its present electricity production is available, and if decisions to commercialize are taken in the near future.

5. Electricity

-- For the second time in 30 years, growth of FRG electricity consumption is stagnant largely due to consumer conservation and the economic recession.

-- Because of the widely divergent views on needed growth of German electricity generation capacity, utilities are finding it quite difficult to plan and implement capacity expansion.

-- Because of the political and social disagreement evident in Germany today, the contribution of nuclear energy in the mix of future electricity power generation is uncertain, and therefore cannot be reliably counted on by energy planners.

-- If the previous two conditions continue, there is a possibility that there may be a gap between electricity generation and demand in about ten years from now. Coal may be able to supply the missing energy but problems in licensing and planning, related to environmental concerns, may occur for coal fired plants in the future as they occur today for nuclear power plants.

Summary of the Major Energy Sectors

1. Coal

German hard coal is high-cost and heavily subsidized, but it is Germany's only major indigenous fuel resource. Promotion of domestic coal is of high political priority. The percent share of coal in German PEC will clearly increase. Regarding electricity generation, it is clear that hard coal will have to provide that capacity expansion not provided by nuclear energy. Brown coal production in the FRG is now at its maximum and predominantly used for electricity production. If brown coal is to be used in significant quantities for gasification, its availability for electric power generation will have to be curtailed. The FRG coal import quota structure, which for many years restricted imports to an annual level between 5-6 million metric tons (mmt), has been altered to permit significant increases of coal imported from non-EC countries. Theoretically, if all quotas could be used and all preconditions for using the quotas were met, up to 30 mmt p.a. could be imported between 1981-1985; 40 mmt p.a in 1986-90; and 50 mtSKE p.a.from 1991-95. Actual increases in coal imports are bound to be considerably less than the theoretical limits due to: the many "strings attached" to certain import quota categories, plus an unclear level of future demand, as well as the uncertain expansion of nuclear power. An ambitious program in the area of coal derived synthetics was announced in 1980. If carried out to its fullest (i.e., up to 14 large demo plants), the program reportedly could require over DM 14 billion of investments. Under current tight budgetary restraints in the FRG, it appears doubtful that more than one or two large projects can emerge - probably at a pace which would make commercialization doubtful until the 1990's.

2. Nuclear Power Generation

Although nuclear power plants now generate a respectable 12% of FRG electricity (from approximately 9000 megawatts of capacity), the future of nuclear capacity growth appears uncertain at this time. Theoretically, FRG nuclear capacity could at least triple by the early 1990's, but under the present difficulties in reactor licensing and vocal opposition to nuclear growth - including members of the governing coalition parties, a stretch out of the rate of FRG nuclear capacity growth is likely.

Although all present and planned FRG nuclear capacity is of the thermal water reactor type, two advanced German reactor demonstration projects are also under construction - a 300 MW liquid metal fast breeder (the SNR-300) and a thorium high temperature gas reactor (the THTR) - both of which could be operational around the mid 1980's. In addition to electricity generation, the high temperature reactor appears to be of great interest to the German coal industry, because theoretically the high temperature output of the reactor could be used to provide energy for coal gasification.

3. Oil

The percentage of oil in FRG primary energy consumption still reaches nearly 50%. 95% of all oil consumed must be imported. It is FRG official policy to reduce oil consumption and import dependency. A major element for accomplishing the goal will be to reduce consumption in the home and small consumer sector, where 35% (1980) of all oil consumed occurs, mostly for heating purposes. The main methods to promote substitution away from oil will be in the promotion of district heating, use of gas, and use of electricity via night storage heaters and heat pumps.

4. Gas

Increase in demand for gas over the last decade has been dramatic, from 5% of PEC in 1970 to 16% today. Gas demand is expected to increase. The percentage of growth will probably level off after 1990. The major growth area is expected to be for home heating, while usage for power plants and by industry may decline. Gas consumption increased rapidly in the past due to attractive prices vis-a-vis competing fuels. In the recent past, gas prices have pretty much caught up to the competition and do not provide the large price incentive they once did. There may also be significant constraints on demand growth, such as: (1) availability of adequate supplies; (2) concern over strategic vulnerabiliy, particularly because imports of Soviet gas are expected to make up 30% of supply by the 1990's; (3) higher future gas prices, plus possible competition in the heating sector from alternate energy sources when available, e.g., electricity via heat pumps and night storage, and district heating from co-generation in power plants.

4. Use of Electricity

Although representing only 14% of all energy consumption in Germany, electricity has a major role in end energy use, and its growth behavior is closely related to the German gross national product. During the current period of economic and electrical growth stagnation, German utilities face the difficult task of planning for electric generation capacity needs more than ten years from now. In addition to capacity needs, the type of capacity is also hotly debated - specifically the roles of nuclear, imported coal, and brown coal use.

Since about 70% of all FRG end energy consumed is used for some form of heating (space plus process heat), a growing role for electricity in the heating market would not be surprising. One form of electrical use in the space heating area already in significant use is night storage. The potential for use of electric heat pumps for space heating is also impressive (up to five million reported as possible, although only about 40,000 are in use today), but the relatively high costs for current type of heat pump systems sold in Germany may severely limit the near term rapid growth of heat pump use in Germany.

One cannot help but be impressed by the FRG district heating situation in which heat from co-generation and thermal plants (generation value over 27,000 MW) is already serving almost two million German residences, and expansion possibilities of two to three times that by the end of the century are cited as practical.

Expansion of district heating probably will be the most significant way in which oil substitution can be achieved in the next few decades in Germany.

II. COAL IN 1980

In 1980, the German coal industry experienced a mediocre year, considerably less buoyant than in 1979. Production and stocks increased slightly, while sales declined markedly as a result of lower exports and flagging demand from the German steel industry, a major customer for coal (Table 2.1).

Table 2.1

GERMAN COAL PRODUCTION (mmt)

	Hard Coal	Brown Coal
1975	92.4	123.4
1976	89.3	134.5
1977	84.5	122.9
1978	83.5	123.6
1979	85.8	130.6
1980	86.6	129.9

Source: Ministry of Economics

Production

Hard coal production for the year 1980, as estimated by the Gesamtverband des Deutschen Steinkohlenbergbaus (Association of German Hard Coal Producers), will reach 86.6 million metric tons of hard coal equivalent (mtSKE), a marginal 0.9 percent above 1979. Brown coal (lignite) production, which is used almost exclusively for generation of electricitv, has remained relatively constant.

Stocks

The level of stocks increased slightly in 1980 compared to the previous year. Mining industry stocks have reached 8.9 mmt at year's end compared to 8.1 mmt last year. Stocks held by the power companies and the steel industry increased marginally to reach 10.2 mmt and the Government owned national coal stockpile remained at 10 mmt. The nearly 31 mmt total of stocks constitute some 120 days supply.

Sales

Sales of hard coal for 1980 are projected to reach 88.1 mtSKE, about 10% (10 mmt) under 1979. In 1979, the hard coal industry experienced an unusual level of one-time export sales of coking coal, as well as moderate increases in sales to domestic electric utilities and to the steel industry. While sales to the utilities have held up in 1980, neither exports nor sales to the steel sector have kept pace (Table 2.2).

Table 2.2

HARD COAL SALES BY CONSUMING SECTOR (mmt

	1979	1980	% Change
Power Plants	38.9	39.2	+ 0.8
Steel Industry	40.3	38.0	- 5.8
(FRG)	(24.7)	(24.8)	(+ 0.4)
(Other EC)	(15.6)	(13.2)	(-15.4)
Households, Small Users, Military	3.8	3.5	- 7.9
Other (German)	5.7	5.3	- 7.0
Other (EC)	7.2	4.9	-31.9
Exports outside EC	7.7	2.7	-64.9
Total	103.6	93.6	- 9.7

Source: Gesamtverband des Deutschen Steinkohlenbergbaus (Preliminary figures).

Imports

In 1980, imports are projected to reach ca. 10.2 mmt, 1 mmt more than in 1979. Increased imports by utilities and by industry (particularly the cement industry, which has been rapidly converting away from oil and gas to use cheaper coal) account for the increase in imports. Imports were up from the U.K., the U.S., and South Africa, and more than offset a decline in imports from Poland (Table 2.3).

Table 2.3

COAL IMPORTS BY AREA OF ORIGIN (mmt)

	1979	1980	% Change
EC			
Steam Coal	1.90	1.95	+ 2.6
Coke	.62	.65	+ 4.8
Total*	2.25	2.80	+ 24.4
Non-EC			
Steam Coal	6.30	6.80	+ 7.9
Coke	.50	.50	------
Total*	7.05	7.55	+ 7.1
Grand Total*	9.30	10.35	+ 11.4

* Totals convert mmt's of coke to steam coal units.

Souce: Gesamtverband des Deutschen Steinkohlenbergbaus.

Price

German domestic hard coal prices are consistently above world market price levels. At the present time the average price for German steam coal is approximately double the landed price of imported coal. (1 ton imported coal equals approximately DM 110 per ton, domestic coal equals 225.) High wage and operating costs, particularly because of the deep mining (e.g. 1200 meters) conditions, will keep German prices well above the world level. However, on an equivalent energy basis, coal prices are competitive and have not risen as quickly as competing fuels, e.g., heavy heating oil:

	Coal (DM per ton SKE)	Heavy Heating Oil (DM Per Equivalent Energy Unit)
1978	DM 164	DM 136.50
1979	175.50	214.30
1980	205.00	314.30

Outlook

The prospects for increased coal consumption in Germany are good. After years of decline, it is now felt coal stands to make a substantial comeback (Figures 2.1 and 2.2). Coal's share of Primary Energy Consumption (PEC) in 1980 rose to 29.6% (27.9% in 1979). In the same period, oil PEC dropped 10% and total PEC dropped 4%. The trend away from oil is expected to continue with substitution coming from gas, nuclear, and coal. A recent Chamber of Commerce survey of Ruhr area industrial firms shows this trend. Thirty-six percent of the firms sampled have definite plans for conversion away from oil to another fuel source. Much of the projected conversion is to gas. A small but growing portion, however, is leaning toward coal.

Because of the unfavorable geological situation, German hard coal is expensive to mine and German labor costs are also high, which has meant German coal was more expensive than other coals offered on the world market. This situation has been countered by massive government subsidies which began in 1967 and are expected to continue at high levels for the foreseeable future. In 1979 and 1980, the German hard coal mining industry, for example, got yearly direct state and Federal government subsidies of ca. DM 6 billion, financed in part by a surcharge on electric bills.

A basic form of protection for the German hard coal industry is conclusion of long term contracts. The coal industry has, with government "encouragement", secured long term sales contracts with the steel companies and the utilities covering approximately half of annual coal production. Utilities, railroads and industrial electricity producers last year agreed to a new long term purchase contract for a minimum 38 mmt p.a. beginning this year and increasing throughout 1995:

LONG TERM COAL PURCHASE COMMITMENTS FOR GERMAN HARD COAL (mmt)

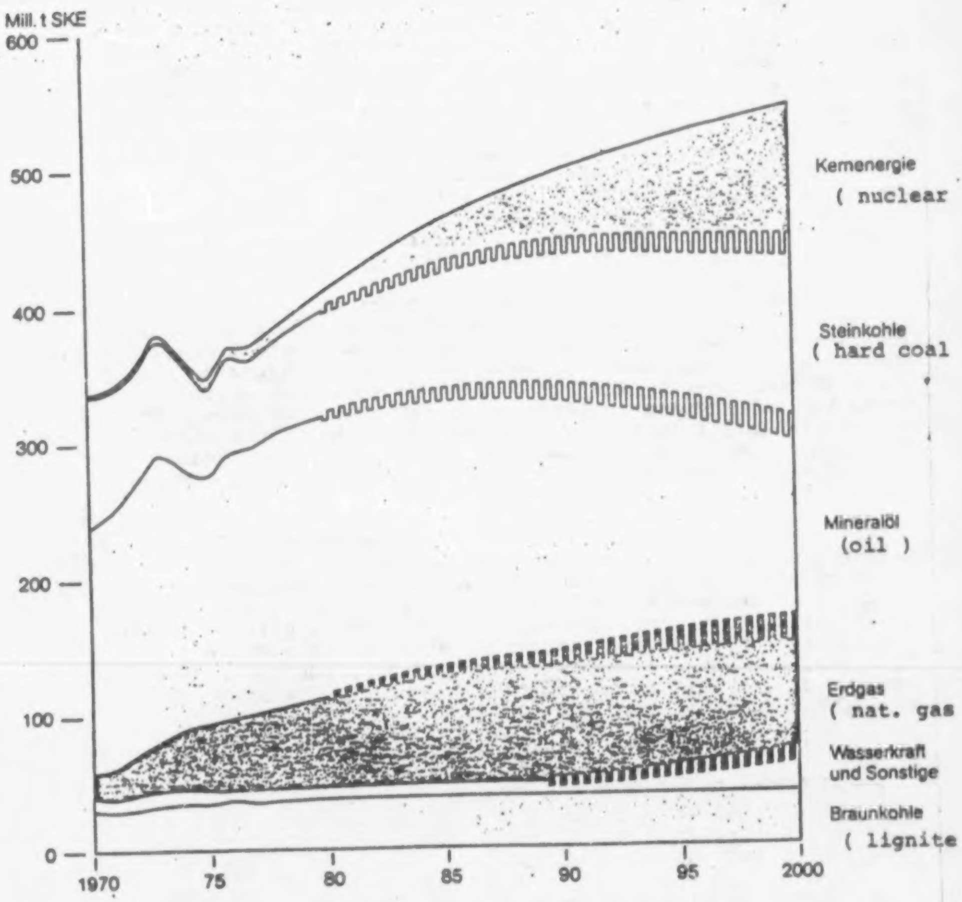
1981-85	191
1986-90	215
1991-95	233

Source: German Hard Coal Producers Association.

N.B. The contracts assume a rate of electricity consumption growth of between 3-5% from 1981-85. If consumption growth is either above or below this rate, purchase amounts are revised upward or downward accordingly.

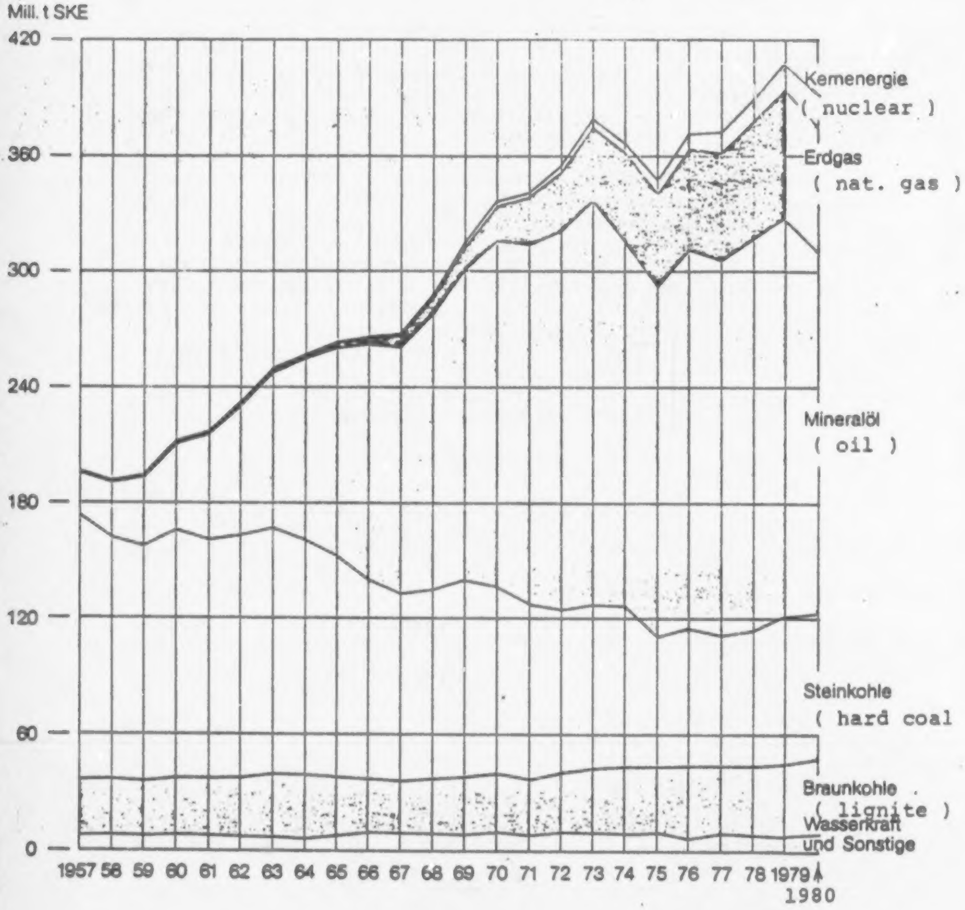
COVERING GERMANY'S PRIMARY ENERGY NEEDS 1970-2000
- projection of the German Hard Coal Association

Figure 2.2.



Ref: (same as for Fig. 2.1)

PRIMARY ENERGY CONSUMPTION IN GERMANY 1957-1980



Ref: Steinkohle 1979/1980, Gesamtverband des Deutschen Steinkohlenbergbaus, October 1980 .

Figure 2.1

German steel company long term contracts for domestic coal (25 mmt in 1980) call for purchases at current world market prices. The difference between the world price and higher domestic prices is made up by the subsidy from the German government, as well as from a contribution from the European Coal and Steel Community.

Basic FRG policy is to promote and support domestic coal production to the maximum extent, while at the same time providing flexible quotas for necessary imports, which can be used if demand exceeds domestic production. Imports of coal from non-EC countries continue to be restricted by quota, but as of this year possible import levels under quota have been significantly liberalized. In addition to the traditional ca. 6 mmt basic quota for imports to northern German coastal states, additional special quotas are available, provided certain conditions are met. The special quota categories are for electricity generation, heating plants, the steel industry, and coal gasification and liquefaction (Table 2.4).

Table 2.4

GERMAN COAL IMPORT QUOTAS (mmt)

	1981	1982-86	1987-1995
Basic Quota	5.1	5.1 p.a.	5.1 p.a.
Additional Quotas	1981-85	1986-90	1991-95
Electricity Generation (5 year integrated quotas)	20	40	60
Heating Market	20	40	60
		1981-1995	
Steel Industry		3 p.a.	
		1981-1995	
Coal Gasification/ Liquefaction		5 p.a.	
		1981-1995	
Reserve		2 p.a.	

Source: German Hard Coal Producers Association.
N.B. As an example, according to the above, there would be a quota availability of 23.1 mmt in 1981, 31.1 mmt in 1986, and 39.1 mmt in 1991. In addition, the government has discretionary authority to raise certain quota categories by 20 to 30 percent.

While adequate legal provision for increased imports now appears to be in place, it remains to be seen how much actual additional demand there will be beyond the level which will be satisfied from domestic production. There is little hard evidence to indicate that demand for imports will surge; a gradual increase in demand for imports is much more likely.

Future Coal Demand

Future demand for coal in Germany is expected to increase steadily. A recent study by Esso* projects total hard coal consumption at 106 mtSKE by 1990 and 128 mtSKE by 2000 (approximately 78 mtSKE needed in 1980). Another source, the German Hard Coal Producers Association, has estimated that between 120 and 150 mtSKE may be needed by 2000 (Figure 3.2). The German coal industry maintains it is capable of producing ca. 90 mtSKE p.a. by 1985 and 95 mtSKE p.a. by 1990, but not all of this will be available for the home market, because of contractual commitments under the European Coal and Steel Community Treaty to supply coal to EC steel companies. Although domestic production should be able to satisfy a considerable portion of domestic demand through 2000 and beyond, there will clearly be unfilled demand open to imports. On the basis of the estimates cited above imports of thirty mtSKE annually or more could conceivably be required by the end of the century.

There are a number of areas where demand can be expected to increase. Coal-fired power plants are one area of probable expansion. At the present time, ca. 5,000 MW in new coal fired power plants are in the construction stage and 11,000 MW more in various stages of planning. Not all the planned capacity is additional. Some will replace old plants and some will replace oil and gas-fired power plants as a result of government policy to prohibit construction of any new oil-fired power stations and to severely restrict gas-fired capacity.

Another area where future demand for coal may occur is for coal gasification and liquefaction. Although there are several major coal gasification pilot plants in operation at the 10 ton or less per hour level, scale-up versions at the 1000 tons per day or larger size remain to be demonstrated before large scale commercialization can occur. Recognizing this need, the government in 1980 selected a list of 14 "large" coal conversion projects as possible candidates for government support. Construction of all 14 projects, according to Government estimates, could cost DM 14 billion (at 1979 prices) and could create a demand for hard coal of 12 mmt p.a. (plus 10 mmt p.a. of brown coal) by 1993.

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* Esso: Welt Energie Ausblick, Dec. 1980

The government is expected to announce this year its program to provide financial and other assistance to certain of the coal conversion projects. It is hard to see, however, that construction of more than one or two large plants, e.g., one brown coal type and one hard coal type, could be feasible in the next few years, in the light of current budgetary constraints. Nevertheless, large FRG coal conversion projects have national security value to Germany because of their potential value to substitute for imported oil and gas, and therefore, we would expect FRG efforts to realize such projects to continue.

In the past two decades, the coal industry has largely lost its big share of the heating market to oil, gas and electricity. As prices for these energy forms increase, however, and as oil and gas supply seems less secure, the coal industry hopes to recapture some of this market. Projections of what this share may be are imprecise. While householders are not expected to return to burning coal directly, coal will be used increasingly for district heating, co-generation, and to generate the electricity used in night storage heating, as well as for heat pumps.

III. THE FRG NUCLEAR POWER GENERATION SITUATION

The Present

Approximately 9000 MW(e) of nuclear electrical generation capacity presently provides about 12% of Germany's electricity needs, and comes from 14 operational power plants (Figure 3.1). Also shown are 10 reactors under construction which could add approximately 11,267 MW(e) of capacity to the German electric grid by the middle to late 1980's. In addition, plans exist for possible construction of another 13,000 MW(e). If all planned construction were to be completed in a timely fashion, which is unlikely, German nuclear capacity could increase from today's 9059 MW(e) to around 33,000 MW(e), by the early 1990's.

The FRG plans for nuclear capacity expansion are impressive but the difficulties facing capacity expansion are formidable, including:

1. A complex reactor licensing system involving both the Federal Government (Ministry of Interior) and state government, wherin the state governments have lead authority for issuing and controlling the various licenses leading up to reactor operation.

2. Laws and procedures which permit blockage in the courts by individuals or groups of nuclear power plant construction.

3. An ongoing and bitter public debate, including disagreement within the ruling coalition parties, as to the desirability of nuclear energy in Germany. Arguments range from a call for significant expansion of nuclear capacity all the way to a call for total dismemberment of all existing nuclear capacity by the end of the century.

A further disadvantage of the decentralized (individual states) licensing procedure makes it impracticable for a reactor manufacturer to vigorously pursue development of a "standard design" which in theory should facilitate licensing throughout Germany. This is because technical review and approval of a standardized reactor design in one German state does not at present guarantee approval in another.

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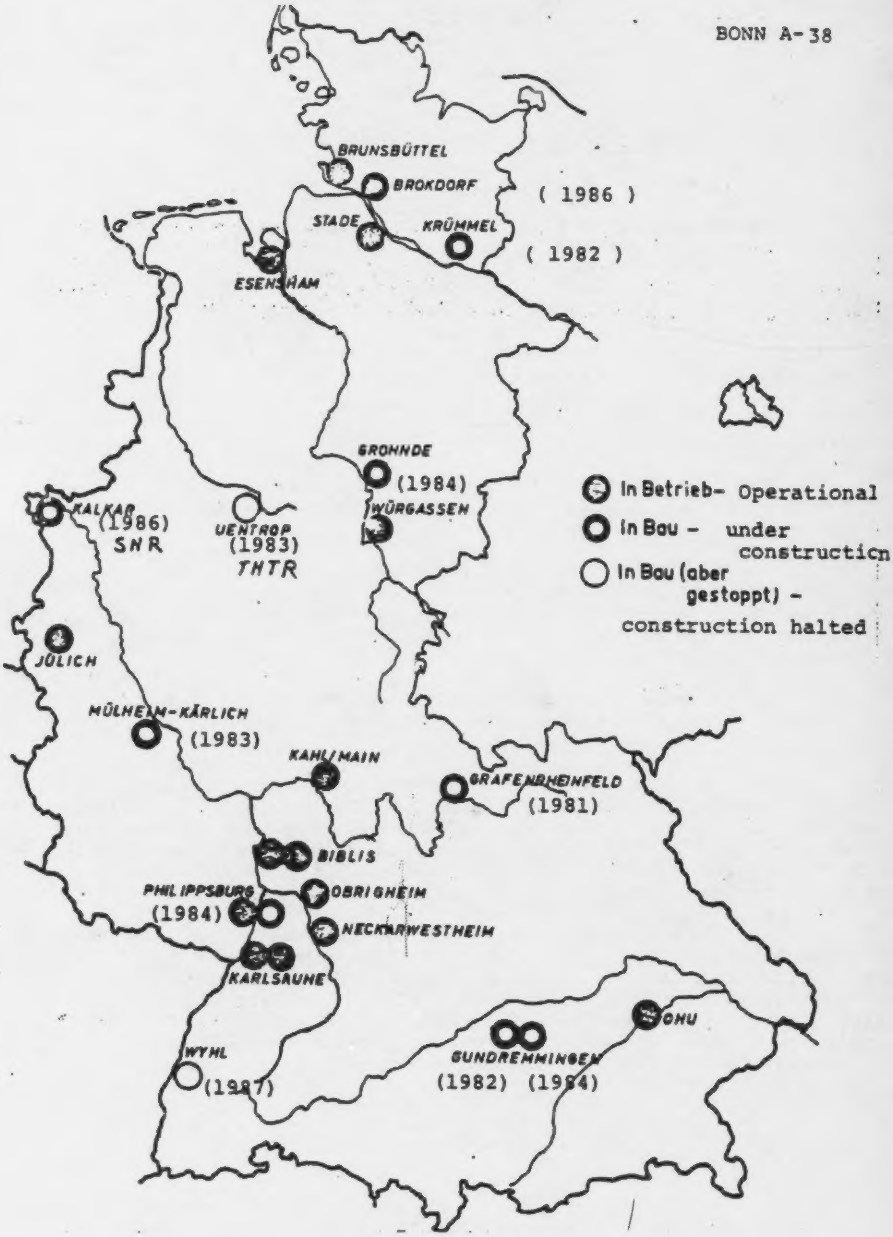

Figure 3.1

STATUS OF NUCLEAR POWER PLANTS - OPERATIONAL AND IN CONSTRUCTION

(indicating date of possible operation)

The Atomic Energy Law of 1976 appears to prescribe that reactors must incorporate "best current available technology". This has opened up the possibility for problems and legal battles at each stage of nuclear plant licensing in which reactor design can be challenged -- even by single individuals.

During 1980, a German parliamentary committee called the Enquete Commission made recommendations to the Federal Government, which if acted on could affect the pace of nuclear growth and development in Germany. As reported in Bonn A-191, some specific nuclear related recommendations of the Enquete Commission were as follows:

A. Because of the uncertainties in supply, demand, and alternative energy sources, it is not possible to decide until the 1990's whether nuclear energy is necessary.

B. Until 1990, Germany should:

-- Continue with construction of light water reactors as demand warrants (a CDU minority called for one to two plants yearly),

-- Not reprocess spent fuel on a commercial scale,

-- Build a 350 ton per year demonstration reprocessing plant,

-- Plan for terminal storage of spent fuel at Gorleben,

-- Continue R and D on all aspects of the fuel cycle, including the disposal of spent fuel without reprocessing.

C. For breeder reactors:

-- No decision should be made on the SNR-300 demonstration reactor before 1982/3,

-- In the meantime, a thorough risk analysis should be carried out.

D. After 1990, Germany should decide on an energy program that will use either/or

-- Nuclear energy with breeder reactors,

-- Nuclear reactors without breeder reactors,

-- No nuclear energy.

E. The Commission should continue its study.

The Enquete Commission's recommendations open the door for indecision on a strong national commitment to nuclear power - while remaining supportive of research needed for advanced nuclear power development. In doing so, the Commission's report appears to reflect some of the concerns being expressed in the ongoing nuclear debate in Germany. To date, the Federal government has not acted on the Enquete Commission's recommendations.

Future Outlook

Although a gloomy picture might be drawn from examination of the present nuclear growth (and electricity demand) situation, strong arguments can, and are, being made on the need to expand German nuclear generation capacity. These include:

1) To free up German brown coal (currently supplying about 12,000 MW(e) of electric generation capacity) so that it may be used instead for future synthetic gas and liquid production.

2) To supplement baseload electric generation capacity which currently comes from expensive German hard coal (at least 5,000 MW(e) of present capacity).

3) To possibly provide via the high temperature reactor a future thermal source of energy (in addition to electricity) which could be used for district heating purposes, or which could be used to supply "reaction" energy to a coal gasification system.

4) To provide an alternative or backup source of power generation to coal, if environmental concerns (such as the CO_2 problem), should in the future seriously impact the desirability of coal use for power generation.

5) To provide an expanded and cheaper source of electricity which can substitute for imported oil and gas used for heating purposes, and which also is much less subject to fuel supply interruption than all other sources, i.e., a nuclear plant can operate for an extended period of time - many months - after foregoing normal refueling.

One may note strong German government support for research and development in advanced reactors areas -- wherein expenditures of over 400 million Deutschmarks annually occur for two demonstration efforts which plan operation of a 300 MW(e) high temperature gas reactor and a 300 MW(e) liquid metal fast breeder* in the next five years. Both reactor concepts have unique characteristics which make them of interest to German utilities: the HTGR, which at sufficiently high outlet gas temperatures (e.g., greater than 850°C) could significantly reduce coal requirements in a gasification plant and the fast breeder, which has the potential to expand the energy content available from uranium by about sixty fold from that available when the uranium is used in conventional water cooled or "thermal" nuclear reactors.

Assuming operation of the two demonstration plants by the mid-1980's, significant expanded use of either concept would probably not occur before the mid to late 1990's. The pace of both advanced reactor programs may also adversely be affected by present FRG research and development funding limitations, which have prompted the present Research and Development Minister (von Buelow) to request larger industrial funding contributions to both projects. Negotiations between members of industry and government officials are underway. Regarding the HTGR, a decision will be made this year as to the future course of the program. The decision is expected to deal with planning for a potential follow-on project to the THTR-300; namely, whether an ambitious high temperature project will be pursued (in which gas outlet temperatures of over 850°C are generated for direct application to demonstrating efficient coal gasification), or whether a more modest dual cycle plant will be pursued (in which electricity is generated, and residual steam -- perhaps only about 400°C -- is used to assist a conventional coal gasification plant, such as a Lurgi). Because of the difficulties, financial and political, with the existing advanced demonstration programs, it would not be surprising to see a decision made for the more conservative followon HTGR route -- if a follow on is pursued at all at this time.

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* The SNR-300 - a cooperative Dutch/Belgium/German Project.

Regarding the previously cited Enquete Commission's recommendations related to nuclear power, the extent to which the German government will use the recommendations is uncertain. Although the Commission recommendation appeared supportive of research and development for nuclear power (e.g., in the areas of spent fuel reprocessing and fuel cycle), other recommendations suggesting delay of the decision regarding a national commitment to future use of nuclear energy, appear inconsistent with stated government policy.

Recent attempts by the federal and some state governments to support construction of nuclear plants (e.g., Brokdorf) have led to mass public demonstrations and strife within the coalition parties. Because of this open and sometimes violent political dissension, the possibility of speedy or timely completion of other planned nuclear power projects may be questioned.

Nevertheless, nuclear supplied power has a potential role in Germany's energy future which cannot be ignored. It is argued that if Germany is to continue to have economic growth, and remain competitive in world markets, abundant and reasonably priced energy - particularly electrical energy - is indispensible. Nuclear power, together with coal, must inevitably play a major role in providing the needed energy.

IV. THE FRG OIL PICTURE IN 1980

Consumption

Consumption of oil in Germany in 1980 declined significantly. Consumption declined by 15 million metric tons (mmt) to reach 129 mmt, 10% less than in 1979. Oil's share as a percent of Primary Energy Consumption (PEC) fell to 48% compared to 51% in 1979 and 55% in 1973. This was the first time since 1968 that oil's share of PEC sank below the 50% level.

Table 4.1

PERCENTAGE SHARE OF OIL IN PRIMARY ENERGY CONSUMPTION FOR REPRESENTATIVE YEARS

1968	49.4%
1973	55.2
1974	51.5
1977	52.1
1978	52.3
1979	50.7
1980	48.

Source: Ministry of Economics

By sector, petroleum consumption in households, industry, and power generation declined, but increased in transportation. This is a reflection of the increased number of vehicles in Germany.

Table 4.2

PETROLEUM CONSUMPTION BY USERS (mmt)

	1973(%)	1979(%)	1980 (%)
Households & Small Users	49.3 (37)	49.6 (37)	41.5 (35)
Transportation	30.0 (22)	37.5 (28)	37.6 (32)
Industry	46.0 (34)	39.9 (30)	33.7 (28)
Power Plants	9.3 (7)	6.2 (5)	5.6 (5)
Total:	134.6 (100)	133.2 (100)	118.4 (100)

Source: Ministry of Economics

Supply

Domestic production accounts for only 4 to 5% of total German oil supply, with imports having to make up the balance. In 1980, imports fell markedly, with net imports dropping by 10% (14 mmt). On the basis of provisional figures, the Ministry of Economics reported total imports of crude oil in 1980 at 98 mmt, 9.6 mmt or 9% lower than in 1979. Figures are not yet available for petroleum product imports for the year. Largest supplier countries for crude oil were Saudi-Arabia (24.7 mmt), Libya (14.9 mmt), the U. K. (14.6 mmt), and Nigeria (11 mmt). For the first time ever, shipments of oil were received in 1980 from two new sources, Cameroon and Mexico.(Table 4.3).

Table 4.3

CRUDE OIL IMPORTS BY MAJOR COUNTRY OF ORIGIN (mmt)*

	1979	1980	% Change
Saudi Arabia	17.9	24.6	+ 37.4
Libya	17.3	15.0	- 13.3
U. K.	11.8	14.7	+ 24.6
UAE	7.6	6.3	- 17.1
Iran	11.5	5.7	- 50.4
USSR	3.6	2.8	- 22.2
Mexico	----	.04	------
Cameroon	----	.03	------
Other	37.7	28.73	- 23.8
Total:	107.4	97.9	- 8.8

Source: FRG Ministry of Economics

* Preliminary Estimates: Bundesamt fuer Gewerbliche Wirtschaft

Prices

At the same time imports were dropping, prices were zooming upward. The average border crossing price per metric ton of crude oil rose from DM 348.02 in December 1979 to DM 519.87 in December 1980, an increase of 64%. DM 65 billion was spent for crude oil and product imports this year, DM 16 billion more than in 1979. At the consumer level, the cost of heating oil has risen dramatically and has been a prime factor in inducing reduced consumption. Skyrocketing oil prices have created a strain on the FRG balance of payments deficit which affects the entire economy. Estimates for 1981 are that an additional DM 10 billion will be added to the oil bill.

Outlook for Oil

Official forecasts of future oil demand in Germany are not available. Several independent economic institutes under contract to the FRG are currently revising forecasts, which are expected to be released when the government announces its Third Revision to the National Energy Plan later in the year. The Deutsche Oel Telegramm has projected total German consumption of oil at 135.4 mmt in 1985 (compared to 144 mmt in 1979) and 131.7 for 1990. Although the percentage consumption of oil is expected to continue to decline, oil will nonetheless remain Germany's single most important source of energy for the foreseeable future. A recent study by ESSO estimates oil's share of PEC could fall from the present 48% to 29% by the year 2000.

FRG Oil Policy

German government oil policy has for some time had the primary objectives of diversifying oil sourcing, encouraging conservation and substitution away from oil (weg vom Oel Politik).

Imports

Germany imports approximately 95% of its oil requirements, and there is no immediate prospect for change in this picture. Domestic German oil production will be doing extremely well to retain the 4 to 5 percent share of the market which it currently holds. In view of this, the FRG has long advocated a policy of diversification in sourcing of supplies of both oil and gas. Such a policy is seen to spread the risk in case of a supply shortfall in one area or another, and has so far been quite successful. Iran was, for example, as late as two years ago among the top three supplier countries to Germany. Despite the very much reduced availability of Iranian oil, Germany has managed to obtain sufficient oil without undue strain from other sources, chiefly Saudi Arabia, Africa and the North Sea. Acquisition was eased in part by a dollar/DM exchange rate favorable to Germany This situation no longer applies and Germany's oil bill is increasing very rapidly.

Backing up the diversification policy has been a program of Government financial support for DEMINEX, Germany's major national oil and gas exploration company. The company has as a result successfully participated in new commercial oil and gas finds in the North Sea, in Egypt, and elsewhere. German oil companies abroad, which are minor by"multi" standards, nonetheless recorded production of 5.8 million tons of crude oil in 1980, 11% above the previous year. Major production sites were in the U. K. and in Dubai. Germany will continue to be dependent on imports for practically all of its oil for the foreseeable future. Programs introduced by the FRG to promote savings together with conservation, induced by market forces, are beginning to show results, but cannot significantly reduce German dependency on imported oil even in the long term.

Conservation

Higher prices have encouraged greater conservation, with a significant decline in total oil consumption.Reductions in future years will probably be increasingly difficult, however, as the easier forms of conservation are exhausted and expensive structural adjustments become necessary. Reductions will be especially difficult also in an economic upswing. There is clearly still room for savings to be made, but long-term structural changes and corresponding investments will be required. There are a few areas where small direct savings could be achieved fairly rapidly, e.g., thefive percent of electricity generation done by burning oil.

The government has now prohibited construction of any new oil fired power plants and is encouraging retirement of present gas fired capacity. The biggest conservation efforts will have to be made, however, in the heating and transportation sectors.

Substitution

Substitution away from oil is perhaps most promising in the household and small user sector (74 mtSKE in 1978), where it is mostly used for heating. Light heating oil provides about 75% of this energy, representing one big area where savings can be made, particularly as insulation, more efficient heating system and building standards can be introduced and retrofits can be accomplished. Introduction and use of heat pumps (only 40,000 are now in use), home solar heating, etc., may take some time before much visible effect toward oil substitution can be detected.

District heating in urbanized areas has considerable potential for substitution above and beyond the significant impact it already has today to affect oil substitution, but it too may require a relatively long time period and considerable expenditure. A major German energy contractor, KWU, estimates, for example, that installation of 4 million heat pumps by the year 2000 could potentially substitute for 35 mmt SKE of oil*. Similarly, KWU estimates doubling present district heating capability (presently 7% of home heating is provided by district heating) could mean an oil substitution potential of 47 mmt SKE by 2000. How realistic these projections are is difficult to assess due to the many variable factors involved. It is FRG policy, however, to move in this direction by creating the incentives to promote heat pumps, district heating (including cogeneration), and other alternative energy forms thereby achieving greater oil substitution. The methods and programs to be used, however, to achieve the government objective are controversial and still not fully developed.

In transportation, despite continually rising gasoline prices, including deliberately higher taxes, German drivers still appear to be willing to pay higher prices and continue to drive much as before the oil crisis. There has been, however, a trend toward purchase of smaller more fuel-efficient vehicles. The German automobile industry has committed itself to achieving between 10 and 12% improved fuel efficiency by 1985. Pressure to accelerate fuel efficiency is being reinforced by government and by the threat of imported Japanese cars.

* Possibilities and Limits for Oil Substitution, KWU, Erlangen, Germany, July 1980.

V. THE FRG GAS SITUATION

Consumption

For the past decade, the German gas industry has benefited from a near doubling of gas consumption. The percentage of gas making up Primary Energy Consumption (PEC) rose dramatically, from 13 mtSKE in 1970 to 65.3 mtSKE in 1980, about 4 and 16.5 percent of PEC respectively. In 1980, overall gas consumption fell slightly as industrial and power plant use declined. At the same time gas in the home heating sector continued its long term rise. (Table 5.1)

Table 5.1

PRIMARY ENERGY CONSUMPTION OF GAS BY SECTOR (mtSKE)

	1979	1980*	Percentage Change 1980
Households and Small Users	17.7	19	Plus 7
Industry	20.1	19.5	Minus 3
Power Plants	20.1	18	Minus 10
Other**	7.4	8.0	Plus 8
Total	65.3	64.5	Minus 1%

Source: Ruhrgas and Gas Association

* Provisional
** Gas industry consumption, use in coking plants, etc.

Major reasons for overall decline can be attributed primarily to rapidly rising gas prices and economic slowdown. Uncertainty about longer-term security of gas supply may also be a background consideration.

Supply

On the supply side, gas import continued its long-term trend increase, while domestic gas production declined. Domestic production declined by -10% to 20.5 mtSKE this year.

Germany has become the world's largest gas importer, taking about 20% of total world trade in gas. Approximately 69% of German gas supply was imported (66% in 1979) chiefly from the Netherlands, the Soviet Union, and Norway. (Table 5.2).

Table 5.2

SOURCES OF GERMAN GAS (mtSKE)
IMPORTS

	1979		1980	
Domestic	23	(34%)	20.5	(31%)
Imports	44	(66)	46.1	(69%)
Of Which:				
Netherlands	25.4	(38%)	24.3	(37%)
USSR	10.6	(16%)	11.6	(17%)
Norway	8.0	(12%)	10.2	(15%)
Total	67.	(100%)	66.6	(100%)

Source: Ruhrgas

Large scale imports of gas into the FRG began in 1967 from the Netherlands and by 1979, Dutch gas was providing 38% of supply. Imports from the Netherlands are expected to level off and to decline in the 1990's. Gas has been imported from the USSR since 1973. Deliveries have now reached a level of 13 mtSKE p.a. and are expected to continue at that level under present contracts till the year 2000. Negotiations are now underway between the Ruhrgas Company and the Soviets, however, which would approximately double imports from the USSR. Imports from the Norwegian North Sea have made rapid strides. In 1977, a 440 km marine pipeline to carry gas from the Ekofisk Fields to the German port of Emden was completed. Deliveries from Ekofisk are expected to maintain an annual level of ca. 11 mtSKE. Negotiations are now in progress to open up other large gas fields in Norwegian waters, which could eventually provide considerably larger quantities of North Sea gas to western Europe.

Outlook

Despite 1980's slight decline in consumption and predictions for leveling off this year, increased gas consumption over the medium and longer-term is likely. A significant problem, however, is the question of assurance of adequate supply.

German domestic production (21 billion cmb*in 1979 or 34% of supply), which has accounted for roughly one-third of supply up to now, will do well to hold its own. The German Oil and Gas Association estimates that increased gas prices may now make it possible to exploit an additional 100 billion cbm of German gas reserves helping to maintain present levels, but investment of up to DM 6.5 billion will be needed through 1983 to do the job. It is the industry's "goal" to maintain domestic production at ca. 20 billion cbm through the 1990's.

Demand Will Increase

Three German economic institutes working for the Economics Ministry in 1977 forecast a gas demand of 18% of PEC by 1985, falling to 16% by 2000. Gas industry sources paralleling the projections of the institutes also forecast a level of 16.5% gas in PEC in 1985. A more recent study, done by ESSO* comes to similar conclusions, predicting a PEC of 83 billion cbm (18% of PEC) in 1990 and 87 billion cbm (17%) in 2000. All of the predictions show gas consumption continuing to increase but at a slowing rate till 1990 followed by a leveling off through 2000. Absolute volumes continue to increase but gas as a percent of PEC remains steady. At the present time the economic institutes are in process of revising their previous estimates, but the results are not yet available. It is also quite possible that, under the present economic and political conditions, the demand projections may be revised downward.

Growth in German gas demand will be concentrated in the home heating sector. Natural gas is now used for heating and/or cooking in about 7.5 million German households (out of 24 million total households). About 4.1 million are equipped with a gas space heating system, and the gas industry estimates that ca. 8 million could use natural gas for space heating by 1990.

* cubic meters

* Welt Energie Blick, December 1980

Switching to gas for home heating (1975 = 8.1 billion cbm compared to 12.7 billion cmb in 1979) has been a notable trend. Relatively low prices for gas compared to other fuels were an important factor. There are indications that recent, more rapid price increases for gas e.g., the much higher price now being paid for imports of Dutch gas, may well tend to slow down future conversions. Much depends also on the relative cost of competitive light heating oil, which is now the major type of household heating. A further depressing factor for consumption is FRG long term policy to discourage and eventually virtually eliminate gas use in power stations, presently 25% of total gas (natural and manufactured gas) consumption. Gas fired power plants are expected to be retired gradually and/or kept in reserve for peak load periods as more nuclear and coal-fired plants are phased in. The future consumption of gas by industry is a mixed picture. Significant cut backs, for example, have been made in the cement industry by switching to coal. Major factors in shifting from one energy/fuel form to another are obviously relative price and long term assurance of supply. (Table 5.3).

Table 5.3

PERCENT GAS CONSUMPTION BY SECTOR

	1978	1979
Chemical Industry	13.4	13.9
Stone, Glass & Ceramic Industry	5.5	5.1
Iron & Steel Industry	16.9	16.8
Other Industry	14.6	14.8
Total Industry	50.4%	50.6%
Electric Utility Companies	24.9	24.9
Households	16.0	16.3
Others	8.7	8.2
Total	100. %	100. %

Source: Bundesverband der Deutschen Gas- Und Wasser-Wirtschaft

Problems for Future Gas Supply

The gas industry has projected supply availability for the early 1990 time period of 83 billion cbm (90 mtSKE), 20 billion cbm more than the 63 billion cbm (68 mtSKE) supply available in 1980. To satisfy the required increase in supply, given steady or declining domestic production, necessarily means an increase in imports (either via pipeline or in the form of LNG) or in gasification of coal. It is widely agreed, however, that coal gasification is not far enough along toward commercialization (except possibly for gasification of brown coal) to be a significant source until the mid-1990's at least, and probably longer. This leaves imports as the only source for maintaining needed supply.

The import picture is troubled. Projects to import gas from Iran by pipeline via the USSR and to import LNG from Algeria have run into snags and do not appear realizable in the foreseeable future. Hopes of securing LNG from Nigeria beginning in 1984/85 are also now in question because of changing plans of the Nigerian Government. In addition, construction of an LNG regasifying facility, possibly at Wilhelmshaven, would have to be completed before LNG imports were possible.

German companies are also making efforts to secure gas in other parts of the world as well. Possibilities are being investigated in countries as wide apart as the Cameroons and Canada. Interest in mounting new projects to obtain associated gas around the world, particularly in the Middle East, remains high, but firm commitments are not yet in sight.

Nearly concluded plans to double gas imports from the USSR, as well as a precontract commitment for gas deliveries from new Norwegian North Sea fields show more signs of success. While initial deliveries from the new Norwegian fields will be small,the fields themselves appear to have sufficient potential to offset eventually declining shipments from the Netherlands.

While the proposed Ruhrgas deal with the Soviets has been criticized by some on grounds that it would unacceptably increase German dependence on the Soviet Union, the Government denies it presents a significantly increased risk and is strongly backing the project. Indications now are that the agreement with the Soviets could be in place this year with deliveries to begin in the mid 1980's.

VI. ELECTRICITY USE IN THE FRG

For the past 25 years, FRG electricity consumption has increased steadily, except for the 73-75 oil crisis period. In fact, electricity consumption growth has always exceeded that of either GNP or primary energy (Figure 6.1). For 1980, the FRG faces a situation of annual electrical consumption growth rate of less than 1%, as well as a very small annual GNP change (1.8% for 1980 -- compared to 4.5% for 1979). At this current time of German electrical growth stagnation, utilities are faced with the difficult problem of not only determining what capacity expansion they should prepare for ten years from now and beyond, but also what form of electrical generation mix (specifically in the nuclear and coal areas) should be pursued?

German electrical power generation comes from three main sources: public utilities, industrial generation, and generation by the German federal railroads. At the beginning of 1980, the relative generation capacities for these three sectors were approximately 71,551* MW(e), 14,829 MW(e), and 1370 MW(e), respectively.

Electrical Generation by Fuel

According to tentative information from the FRG electric utility association (VDEW), the composition and capacity of electrical generation in the public utility sector for 1980 was as follows:

	Approximate Electrical Generating Capacity, at the beginning of 1980 MW(e)	Estimated Net Utility Electrical Generation for 1980 Twh **	Percentage of Total
Hardcoal (bituminous)	20,856	78.7	26.4
Browncoal (lignite)	13,284	89.3	30.0
Oil	11,435	14.2	4.7
Gas	10,520	52.6	17.7
Nuclear	9,149	42.6	14.3
Hydro, Import, Other	6,222	20.6	6.9
Total	71,466 *	298.0	100.

**one Twh = one billion kwh's
* N.B. Slight difference in totals related to use of different sourc

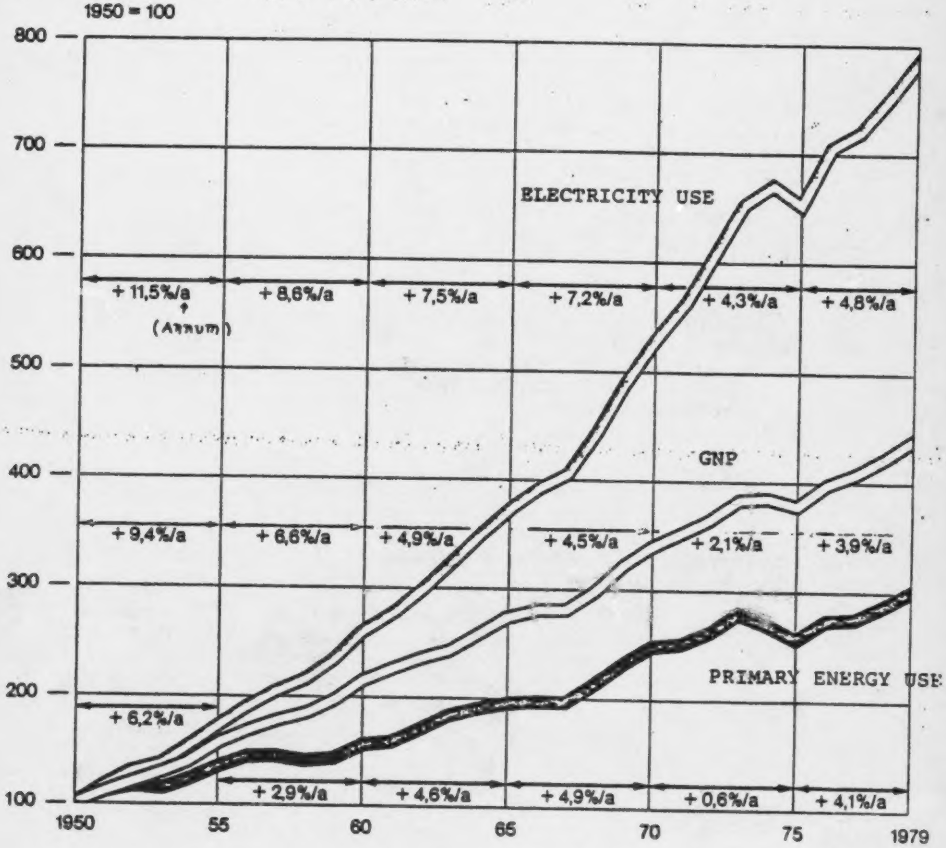


Figure 6.1

ECONOMIC GROWTH, PRIMARY ENERGY USE, AND ELECTRICITY USE IN GERMANY - 1950 - 1979

In addition to the 298 Twh generated by the public utilities, German industry generated approximately 69 Twh, and the German national railroad generated about 6.9 Twh of electricity. The above leads to a total FRG 1980 electric production of 373.9 Twh, which is almost the same as that for 1979 - reported in Bonn A-36 - one year ago. The net electricity used in the FRG (subtracting losses in generation and transmission) is reported as about 351 Twh for 1980.

The figures given above should not cloud the fact that electricity represents only about 15% of all the energy consumed ("end energy") in the FRG (Figure 6-2).

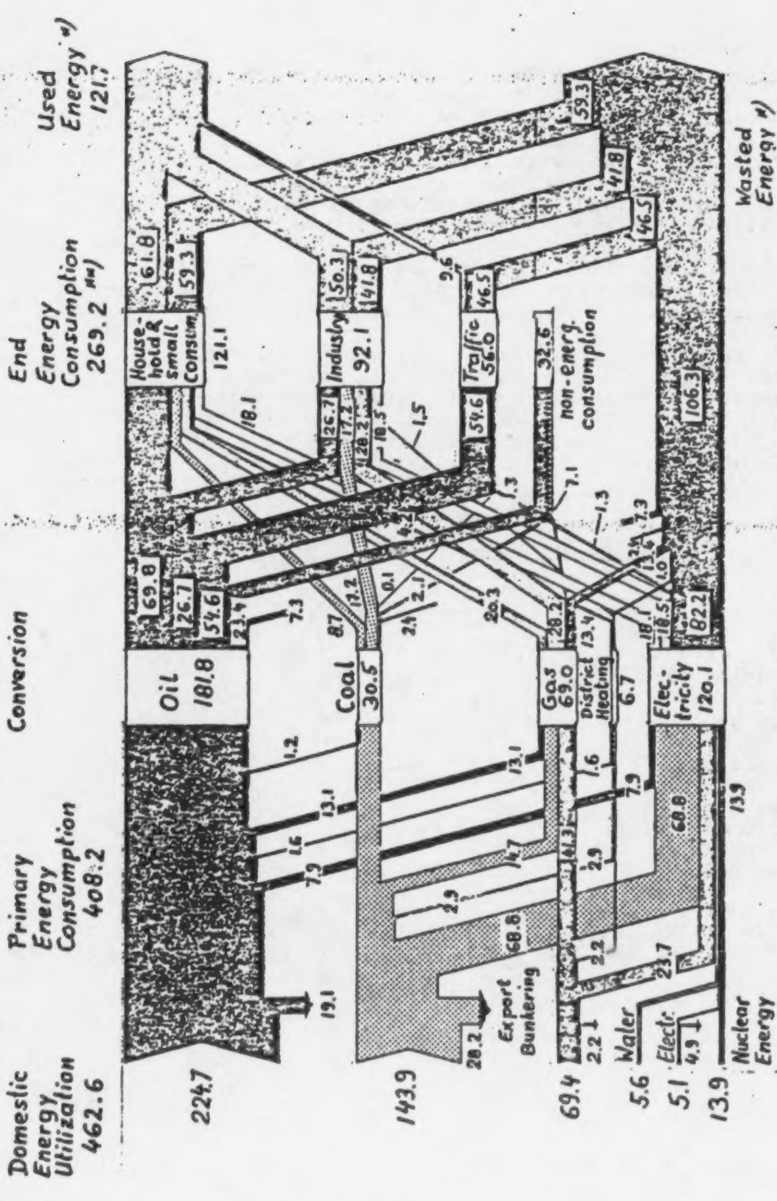
Nevertheless, electricity is the most versatile form of end energy and its use in the FRG is growing, especially in the heating sector. Based on 1977 published data, about 45% of all electricity used in the FRG is for heating purposes (Table 4.1), and this percentage may be roughly assumed valid today.

Table 4.1

ELECTRICAL END USE IN THE FRG

	Percent of Total Electrical Use (for 1977)	
Power and Light	51.7%	
Transportation	3.2%	
Industrial Heat	18.8%	
(process heat)	(18.2%)	
(space heat)	(0.06)	
Home Heating	16.7%	= 45%
(space heat)	(9.8%)	
(process heat)	(6.9%)	
Small Consumer Heating	9.5%	
(space heat)	(1.7%)	
(process heat)	(7.8%)	

Ref: Die Volkswirtschaftliche Bedeutung der Electrischen Energie auf dem Wärmemarkt (The Economic Importance of Electricity to the Heat Market), published by the German Electrical Utility Association, VDEW, September 1980.



*) Units = 10^6 tons HARDCOAL EQUIVALENTS

**) without non-energetic consumption

ENERGY FLUX DIAGRAM of the Federal Republic of GERMANY 1979

Figure 6.2

An indication of electrical use trends for various FRG consuming sectors is given in Figure 6-3. The dramatic increase of electricity in the home sector specifically may be noted. Since 1950, industrial electrical consumption has increased roughly 6 fold, whereas home use of electricity has increased roughly 27 fold. The latter has occurred mostly due to the increase in electrical home appliances (refrigerators, stoves, and washer/dryer machines) during that period. Now that most German homes have the above devices, so that the main appliance market will be replacement rather than growth, growth of electricity use in the home will probably be more closely tied to electric use for heating purposes. Presently, about one-half of all German homes use oil for heating purposes. These approximately 12 million residences clearly are a target for heating schemes which substitute for oil, namely: gas, district heat, and electricity - the latter via ether heat pumps or via "night storage" in which a medium such as stones or oil is heated during the night when a special low tariff electricity is available, to store heat for subsequent day use. Currently there is about 28,000 MW of electric night storage in place serving roughly two million homes. The particular value of night storage is that it uses electricity between the slo midnight and 6 AM period and requires no extra generation electrical capacity, above that needed for peak service times (Fig 6-4

The situation with heat pumps is that of an emerging technology -- with only about 40,000 presently installed in Germany. Several news articles and forecasts talk of 4-5 million home heat pump units installed by the turn of the century. Realization of such goals -- especially in comparison to other alternatives including gas -- will have to await technical developments which must significantly reduce the capital costs of present day heat pump systems (installed costs of over 10,000 dollars per home are reported).

The Future

The previously cited VDEW reference notes that about 70% of all end energy used in the FRG is for some sort of heating purpose, and further, implies that about 60% of all the increase in FRG electricity production between now and the year 2000 is expected to be in the heating area.

The VDEW study indicates 16% (out of the above cited 60%) of projected electric growth would be for home heating, with the balance being for industrial and other non-home heating purposes. These areas are closely tied to fluctuations of the economy. Therefore prognostication of future electricity growth are as uncertain as prognostication of the FRG future economy. Both of the above will be discussed in the next section of this report.

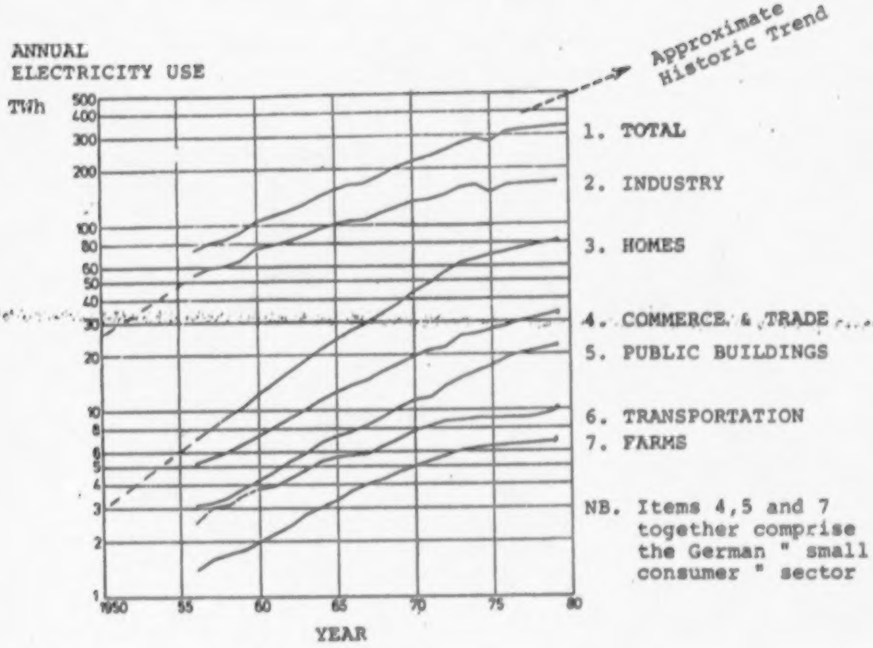


Figure 6.3

TRENDS OF ELECTRICITY USE FOR VARIOUS CONSUMING SECTORS IN GERMANY

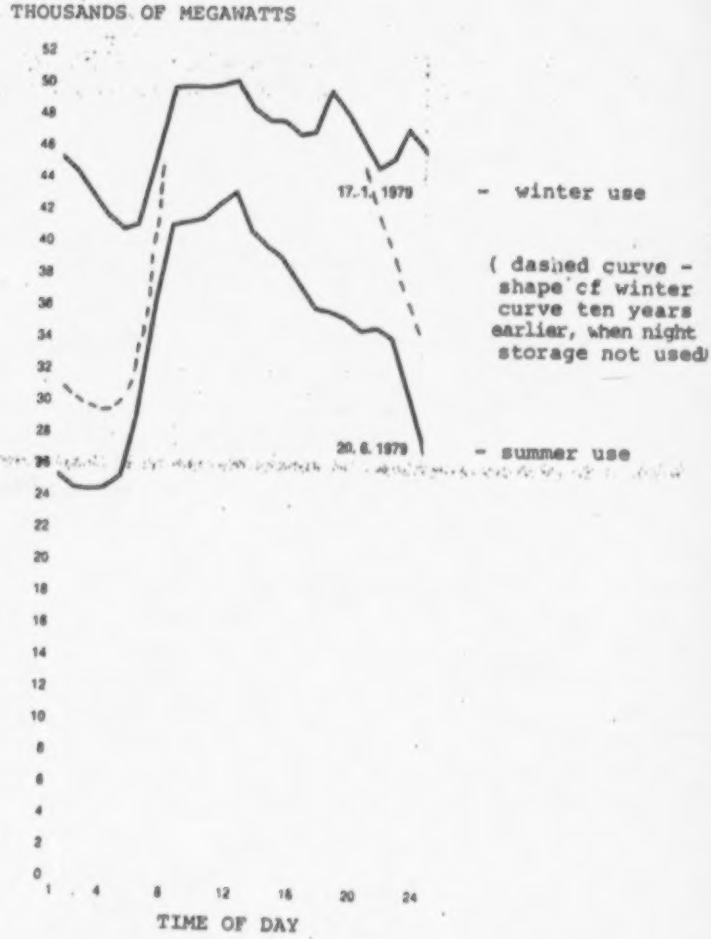


Figure 6.4
ELECTRICITY USE IN SUMMER AND WINTER

UNCLASSIFIED

Ref: VDEW Die Oeffentliche Elektrizitaetsversorgung 1979, Sept.1980

VII. ENERGY PROGNOSTICATIONS IN THE FRG

In the last official German energy program published by the German Ministry of Economics (BMW)*, two important assumptions appear implicit in the energy projections shown - that the oil part of primary energy (now slightly less than 50% of all primary energy consumed), should be drastically cut by the turn of the century (Figure 7.1), and that electricity from nuclear energy and coal should fill in most of the primary energy growth required, especially in the electrical supply sector (Figure 7.2). Figures 7.1 and 7.2 were prepared on the basis of a BMW defined FRG national growth pattern (Figure 7.3). Since the time of the above study, numerous other studies and projections have been published in the FRG. In all cases, the projections have been revised downward from those of the December 1977 case. Using a forecast from a recent publication by the German Hard Coal Association (Figures 7.4 and 7.5), the ranges of some other forecasts to the year 2000 can roughly be shown. The highest range indication is from the 12/77 government program cited, and the lower end of the range shown is related to the work of those who believe society could, and should, forego nuclear energy. The ranges indicated in the figures 7.4,5 also occur in the projections published last year by the German Parliamentary "Enquete Commission" in which four energy paths are discussed. The maximum energy use path of the Enquete Commission report is again the 12/77 government projection, and the minimum Enquete energy path reflects the opinion of those recommending total dismemberment of all German nuclear capacity before the end of this century (Figure 7.6).

Some conclusions which have been drawn from reviewing various FRG energy projections are:

1) If the extreme case of negative future energy growth (Enquete Commission Path 4) is ignored, all the other prognostications appear to converge on predicting possible future primary energy consumption growth to the year 2000 (from the approximate 390 mtSKE of 1980) as being in the range 500-550 mtSKE. The last FRG energy program showed a 2000 range of 560-600 mtSKE, significantly higher than the later estimates.

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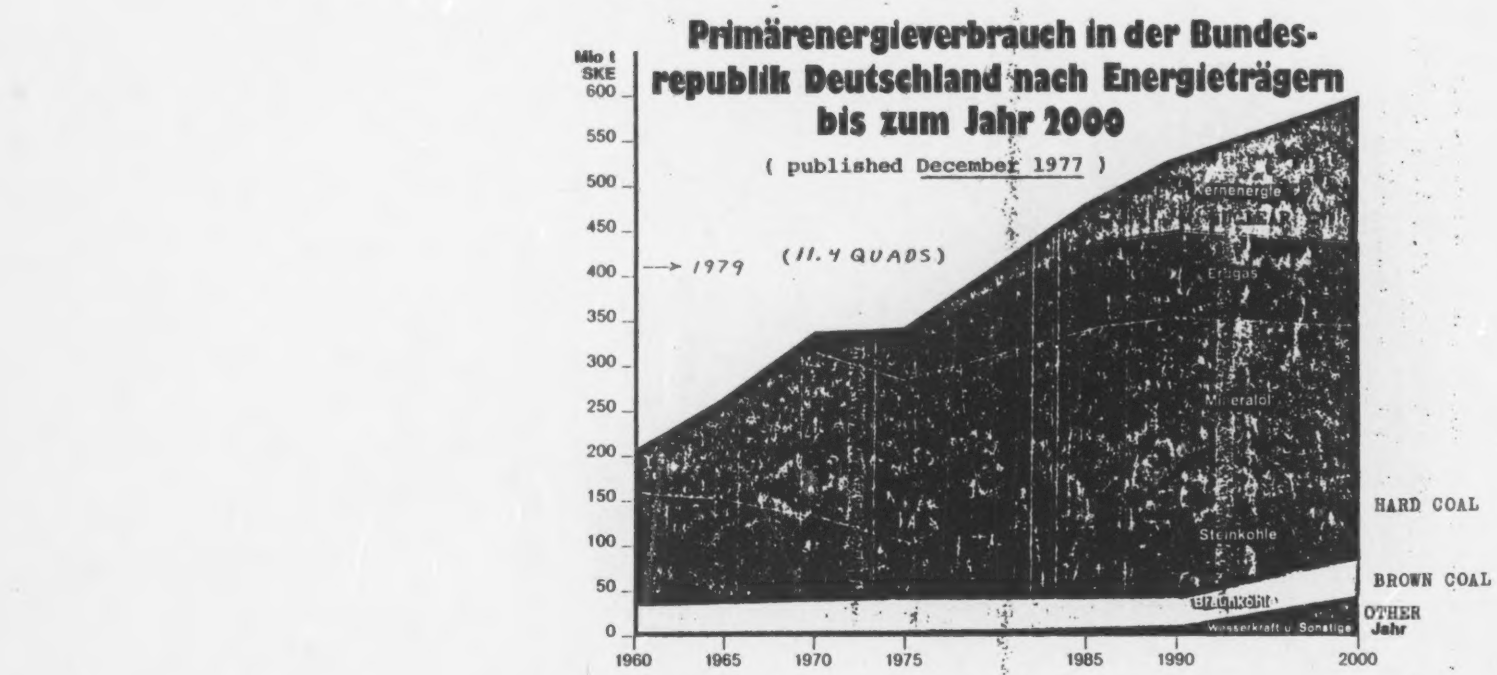
* Energie Program der Bundes Regierung, Zweite Fortschreibung, BMW, December 14, 1977 (Second Revision of the National Energy Plan).

UNCLASSIFIED

GERMAN PRIMARY ENERGY CONSUMPTION - TO THE YEAR 2000



Primärenergieverbrauch in der Bundesrepublik Deutschland nach Energieträgern bis zum Jahr 2000

(published December 1977)

Ref: (given on previous page)

Figure 7.1

UNCLASSIFIED

GROSS ELECTRICITY GENERATION IN GERMANY

Brutto-Stromaufkommen in der Bundesrepublik Deutschland nach Energieträgern

(published December 1977)

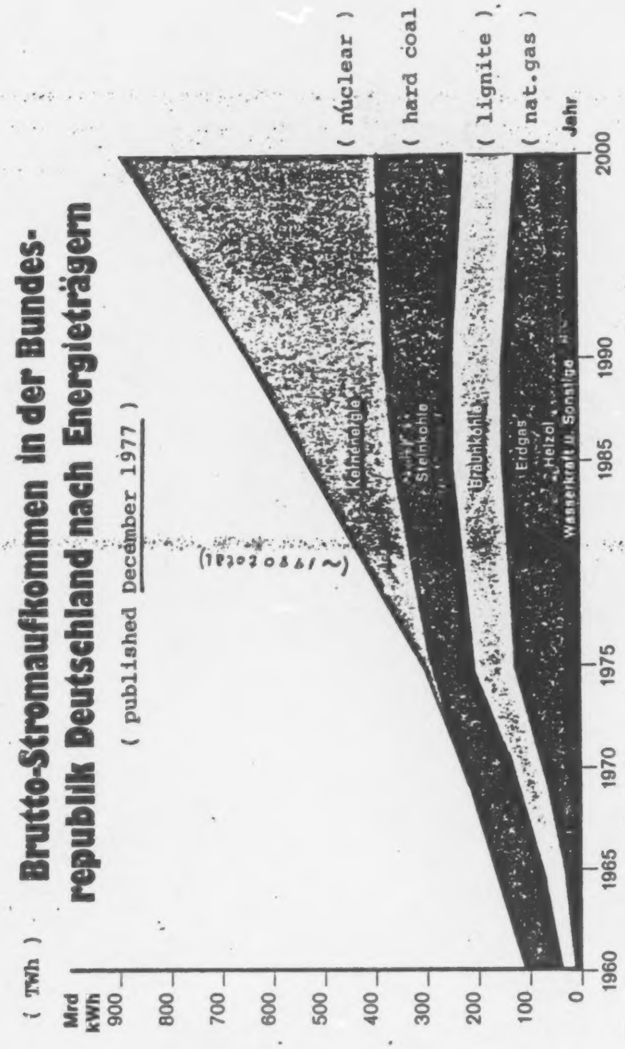
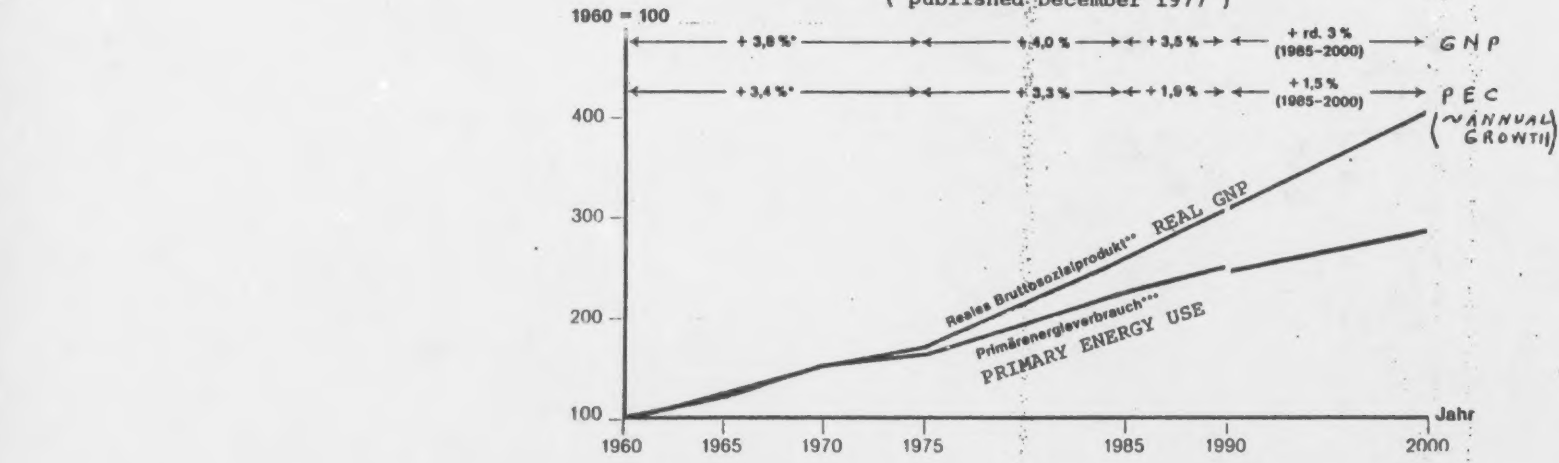


Figure 7.2

ECONOMIC GROWTH AND PRIMARY ENERGY USE IN GERMANY

Wirtschaftswachstum und Primärenergieverbrauch in der Bundesrepublik Deutschland

(published December 1977)

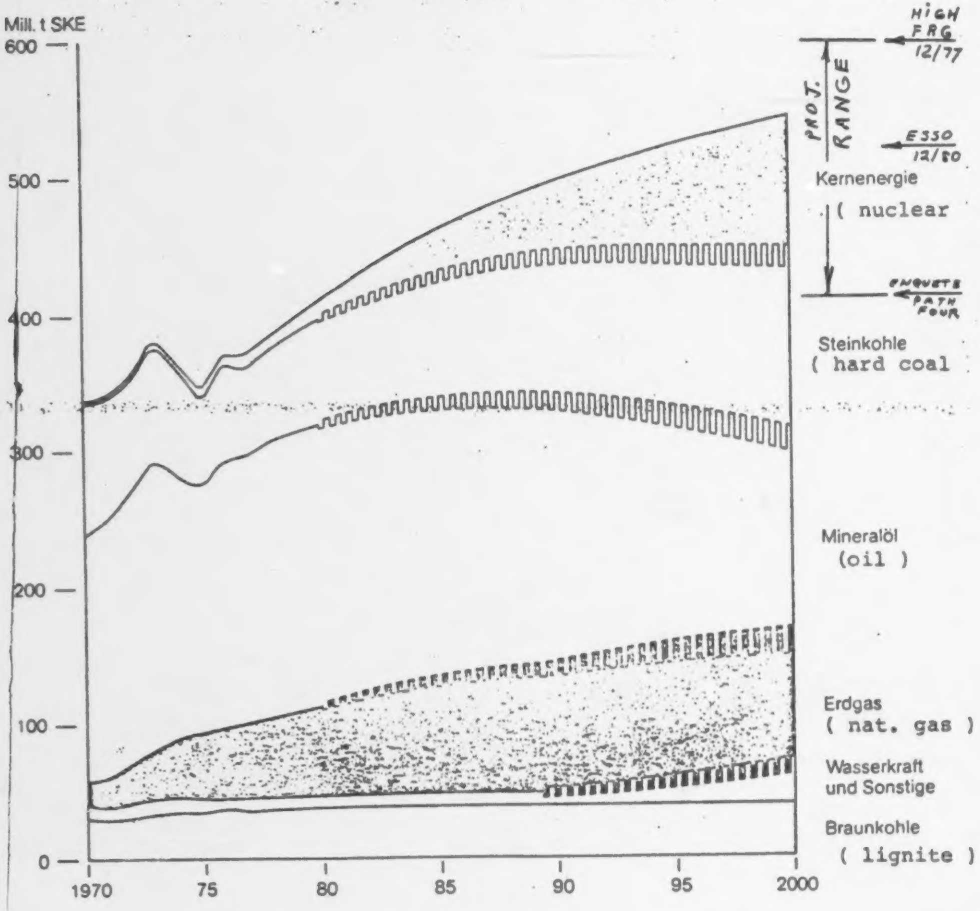


REF: same as previous figure

Figure 7.3

COVERING GERMANY'S PRIMARY ENERGY NEEDS 1970-2000
- projection of the German Hard Coal Association
(published October 1980)

Figure 7.4



Ref: (same as for Fig. 2.1)

COVERING GERMANY'S ELECTRICITY NEEDS
- projection of the German Hard Coal Association
(published October 1980)

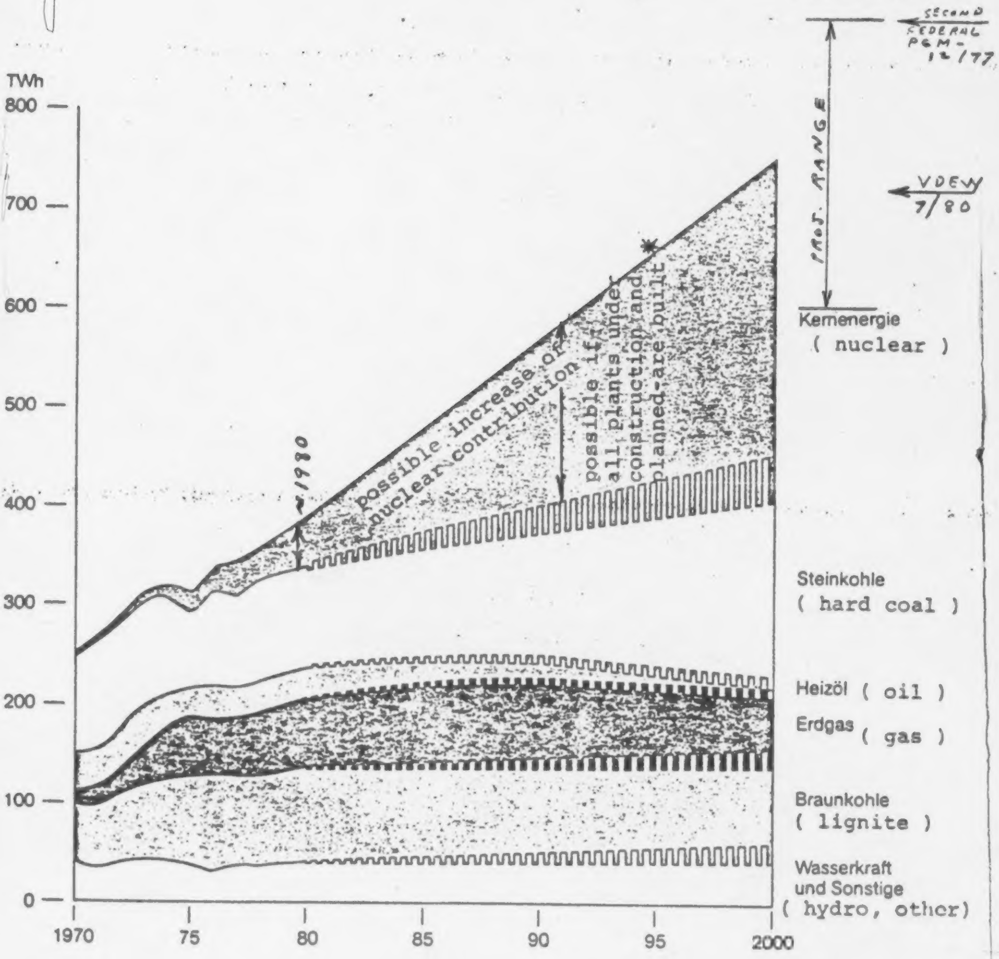
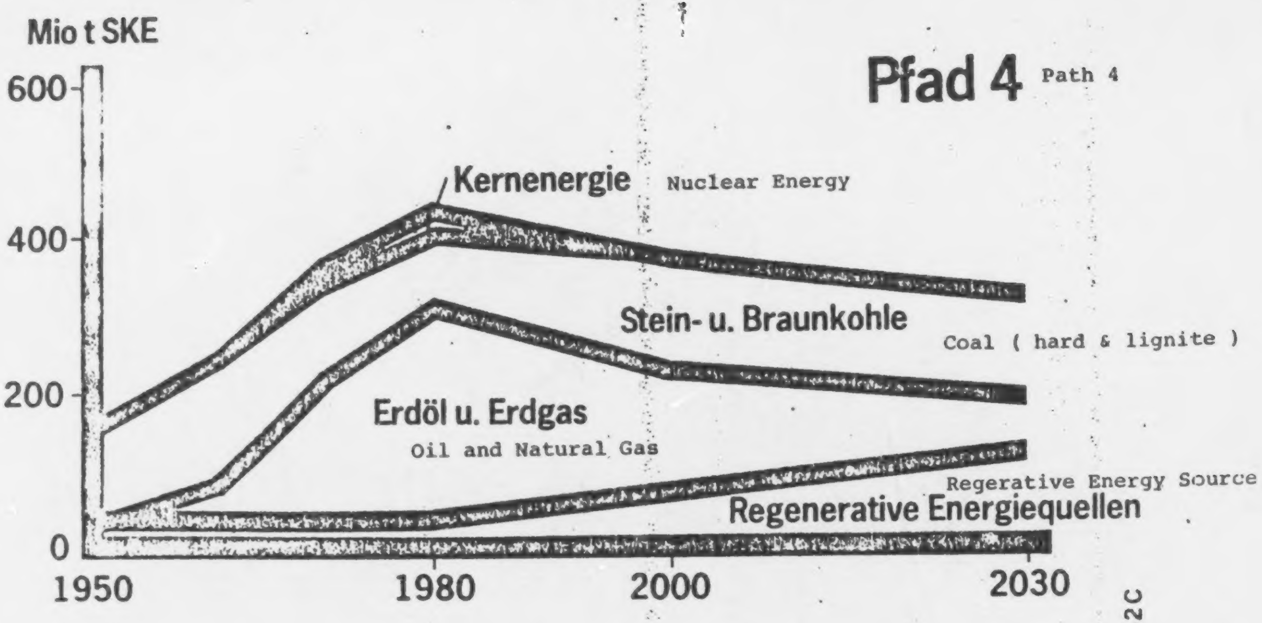


Figure 7.5

* assuming approximately 30,000 MW(e) capacity, yielding annually about 6 TWh of electrical energy (per 1000 MW(e))



Primärenergieeinsatz (Mio t SKE)

PRIMARY ENERGY UTILIZATION

Figure 7.6

2) The main energy sources which are to cover future energy consumption growth are coal and nuclear -- with possible contribution from natural gas (projection of possible gas contributions to growth are revised downward significantly from the government's 1977 projection).

3) All projection studies assume a significant decline in use of oil by the year 2000 (e.g., from the 49% of PEC of 1980 to less than 30% of PEC by the year 2000). Therefore, other energy sources will be required to replace all and in addition satisfy whatever energy consumption growth occurs between now and the year 2000.

4) If high energy consumption growth occurs, currently planned nuclear capacity expansion (to approximately 33,000 MW(e)) does not appear adequate to cover projected year 2000 requirements.

5) At the low end of projected consumption needs (related to annual energy growths of less than 2%), it appears that existing planned nuclear capacity expansion may be adequate to cover required electricity growth to the end of the century -- assuming capacity expansion goes forward on a timely basis.

This year the German government plans to prepare a new four-year energy development plan, "the third", as well as publish a new set of possible energy projections for the future. We understand that for the current set of projections the government has not defined the probable economic growth rates, as had been done for the December 1977 study. This omission can be expected to greatly complicate the job of the prognostication institutions. The government has said it will in no case sanction any projection. It will simply publish the institutes' results.

It will be most interesting to see how the coal and nuclear part of the study will be handled, and how the analysis is translated into the government's energy policy and program.

WOESSNER

The Ambassador of Switzerland

Washington, November 5, 1981

Dear Senator Warner,

I thank you for your letter of October 19, 1981, by which you invited Switzerland to participate in the hearings beginning November 10, 1981 before the Subcommittee on Energy and Mineral Resources of the United States Senate on "America's Role in the World Coal Export Market".

My country abstains, as a general policy, from direct participation in hearings conducted by the executive or legislative branches of other States. I have therefore been instructed to submit to you the following informative assessment of the possible future development of the use of coal in Switzerland.

"Switzerland is heavely dependent on imported energy. Over 80 per cent of total energy consumption has to be imported. This includes primarily oil, but also natural gas, coal and nuclear fuel. Switzerland has no coal resources. Between 1979 and 1980 coal consumption increased by 70 per cent to 0,7 mio tons. This represents roughly a share of 2 per cent in total energy consumption. Only a moderate expansion of coal use is envisaged up to 1990. In the 1990's, however, coal use in electricity generation and district heating may well increase, especially if further delays in the nuclear expansion should occur. At present no coal is used for electricity generation.

The major constraints on increased coal utilization are the high cost of imported coal as a result of long transporation distances (most coal imports reach Switzerland through the European waterway-system to the Port of Basel) and environmental concerns.

./.

The Honorable
John W. Warner
United States Senate
3104 DSOB
Washington, D.C. 20510

Switzerland adheres primarily to the free market economy. This applies to energy trade as well. Accordingly, the Swiss Government has no legal basis for promoting the utilization of coal by financial incentives.

On this occasion we would like to draw attention to the fact that the Coal Committee of the U.N. Economic Commission for Europe (ECE) is presently undertaking a study "World Coal Trade to 2000" which might be of interest."

If you need any additional information on the present and future coal needs of my country and the major parameters influencing these needs I shall be glad to forward your request to my authorities.

Sincerely yours,

Anton Hegner

cc: Mr. Roger Sindelar, Counsel, 3104 DSOB, Washington D.C.

Shell Italia S.p.A.
DIVISIONE CARBONE:

Piazza della Vittoria, 11/8 - 16121 GENOVA
Telef.: (010) 566.804 - 566.313
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Cap. int. vers. Lit 9.000.000.000
C.C.I.A.A. Milano 899454
Tribunale N. 161912
Partita IVA e Codice fiscale 01841620154

Rif. Vostra
Rif. nostra COAL
data Genova, 16 Novembre 1981

Gentile Console
Mrs. Claretta Scott
Consulate General of the
United States of America
Piazza Portello, 6
16124 GENOVA

Gentile Signora Scott,

desideriamo ringraziarLa per la Sua lettera del 10 Novembre e come da Lei suggerito Le alleghiamo la relazione:

"Shell Italia latest view of steam coal imports - Italy: 1980-1990"

che preghiamo di voler gentilemente far proseguire per il Subcommittee on Energy and National Resources di Washington.

Cogliamo l'occasione per porgerLe i nostri migliori saluti.

SHELL ITALIA S.p.A.

TRANSLATION

Dear Mrs. Scott:

Thank you for your letter of November 10. As you suggested, enclosed is our report on "Shell Italia's latest view of steam coal imports - Italy: 1980-1990" which we kindly request you to submit to the Subcommittee on Energy and Mineral Resources in Washington.

Sincerely yours,

Gian Luca Chiavari
SHELL ITALIA S.p.A.

• •

Shell Italia latest view of steam coal imports

ITALY: 1980 - 1990

• •

"Il Ruolo Americano nell'Esportazione di Carbone al Mercato Mondiale"

(Subcommittee on Energy and Natural Resources)

Washington, 10 - 13 Novembre 1981

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b. Cement factories
c. Brick-works
d. Self-producing plants
e. Municipal electric power plants

CONCLUSION

INTRODUCTION

A. The objectives of the national energy plan (NEP)

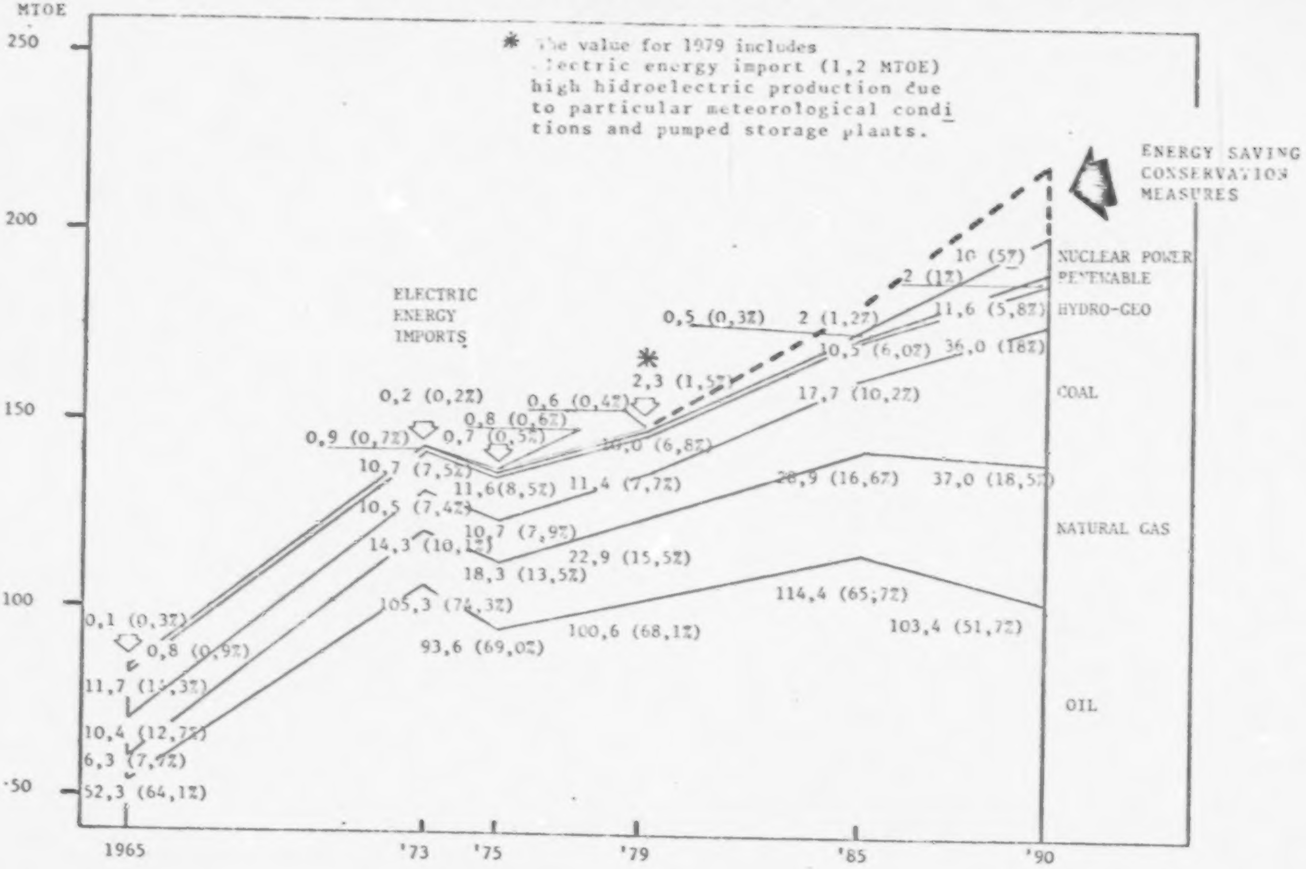
The following is a summary of the NEP objectives:

- to curtail the energy demand within the limits of 200 million tons by 1990;
- to reduce dependence on oil by freezing imports and lowering the total energy demand from 68% (in 1979) to 50% (in 1990). This reduction could be obtained by adopting the following plan of action:
  - . the restriction of consumption for unreplaceable usage e.g. transport;
  - . the gradual reduction of consumption for remplaceable usage e.g. heating;
  - . by a drastic reduction in the use of oil for thermoelectric purposes and in the cement industry;
- natural gas must instead play an increasingly important role in covering the national energy requirements; in fact, as opposed to the 28 billion m^3 in 1979 which covered 15% of the total energy demand, 3[illegible] billion m^3 are expected in 1985 and 45 billion m^3 in 1990. equal to 18.5% of the total energy consumption:
- the nuclear power stations in operation by 1990 will have to contribute 10 million toe to the national energy requirements;
- recourse to renewable sources in the building trade, industry and agricolture, with the aim of reaching at least 1.-% of the coverage of energy requirements in 1990;
- finally, there is a special plan to increase the consumption of steam coal (which will be dealt with at lenght in this paper) to reach the following amounts:

FORECAST OF COAL IMPORTS (10^6 Tons)

		1980	1985	1990
COAL-BASED ENERGY				
of which	. ENEL	5.0	9.0	38.0
	. INDUSTRY	0.7	5.0	8.0
	. CIVIL USE	-	0.5	1.0
	. COAL-OIL	-	0.5	1.0
TOTAL		5.7	15.0	48.0

ITALIAN ENERGY CONSUPTION FROM 1965 TO 1990 - PIMARY SUORCES



* The value for 1979 includes electric energy import (1,2 MTOE) high hidroelectric production due to particular meteorological conditions and pumped storage plants.

DIVISION ACCORDING TO SOURCES AND SECTORS OF ITALIAN ENERGY CONSUMPTION UP TO 1990 - MTEP

Non-petroliferous availability forecast in the Plan	1979	1985 (objective)	1990 (objective)
Natural gas produced and imported	22.9	28.9	37.0
Coal produced and imported	11.4	17.7	36.0
Renewable sources	-	0.5	2.0
Primary Electricity	12.3	12.5	21.6
Non-petroliferous total available	46.6	59.6	96.6
Requirements of oil for non-replaceable use			
Oil for fuel, bunkering and petrochemistry	37.1	43.6	50.6
Requirements of oil for uses replaceable with other sources			
Thermal use	34.6	27.9	21.5
Thermoelectric use	22.0	34.4	23.9
TOTAL	56.6	62.3	45.4
GENERAL TOTAL	140.3	165.5	192.0
Consumption and losses in the oil sector	7.5	8.5	8.0
Overall consumption in primary sources	147.8	174.0	200.0

B. The objectives of the coal sector

- National production: the Sulcis coalmines should reach an annual extraction level of of 2.8 million tons which could rise to 4 million tons. As regards the utilization of this coal, the latest reports from the ENI group indicate the method of extracting methanol as being the most convenient from an economic point of view, compared with other alternatives examined such as gasification and direct fluid-bed combustion.
- Supplies from abroad: the strategies indicated are those of safety and price attained through:
  - . long-term buying contracts
  - . shareholdings in the mines
  - . and maximum differentiation in the geopolitical areas of supply.

No indication is given by the NEP as regards the availability of coal in the world, exportable via sea. Based on the assumption that the international coal trade can ensure the safe guarantee on the following amounts:

(10^6 t.)

	1985	1990
AUSTRALIA	20-30	45
SOUTH AFRICA	40	65-70
USA	25-30	50-60
CANADA	5	15
COLUMBIA	-	15
CHINA	4	10
URSS	8-10	4-6
POLAND	15	20
EEC	6	8
OTHERS	2	7
TOTAL	125-142	239-256

According to the data of the Plan, Italy would absorb about 12% -10%of the supplies in 1985 and 20% in 1990. This latter level of 20% is a worrying factor as it contrasts with the general Energy Plan drawn up by the coal steam importing countries which does not appear to allow us the required space. A fairly clear example is that of Italy's request for coal steam added to that of Japan in 1990 which would absorb approximately 50% of the supplies indicated above.

- The NEP points that their supply policy must be carried out through both public and private operators at present engaged in serious research programming and financing which are, however, somewhat long and drawn-out, thus causing the forecast amounts indicated above to remain stationary.

- The requirements of infrastructures: the incidence on the ultimate price of coal for international maritime transport can reach levels of up to 50% and reduction of this depends on the size of the ships which, however, is determined by the depth and the infrastructure of the ports of both the exporting and importing countries. This fact relates the Plan to the international situation. No exporting country is prepared to organize its own ports according to the size of ships that would then not be admitted into importing ports. Besides, in the NEP, it is absolutely essential to have an indication of how the European terminals (e.g. in Holland, Denmark and Spain) are organizing themselves to face the increasing demand for coal, and find out what size the new terminals of the exporting countries are, for example, in USA, Australia and South Africa.

- The national fleet: it is not absolutely necessary that it should adapt itself to cover the total requirements of coal in so far as this goal might contrast with that of the exporting countries who appear to be aiming at the same objectives.

- The national terminals have been defined by the NEP as being ports with a ship-receiving capacity of more than 100.000 dwt with adjacent areas suitable for the construction of ample storage space and for the mixing of coals of different origins, together with a positioning for the improvement of the use of the territory with specific reference to the consumer centres. Although this is a fairly accurate definition, we consider it to be very generic. It can be assumed that these terminals are operating in relation to both the thermoelectric and industrial plants as well as those of the iron and steel industry and also that the operating range should extend beyond the national boundaries to serve other countries with the same needs, within the Mediterranean area. As far as we know, France, Spain and Greece are at present working on projects to build terminals similar to those planned by the NEP.
  Besides, if - in every new thermoelectric power station - they are planning to develop port infrastructures in such a way as to render them self-sufficient for the direct importation from the producing countries, what then will the function of the terminals be?

- Transport from the terminals to the final destination points could be carried out according to the Plan by availing of both:
  - . smaller-size ships for coastal use, which should guarantee coastal depots also if sufficient storage space is not available;
  - . and barges for rivers transport where depots for sorting-out coal are planned;

. road transport for supplying small consumers at short distance.

Before arriving at these details, one must enquire wheter cost limits exist that could prevent coal being transported throughout the whole of Italy? How much transshipment, transport and passage in depots can coal undergo in order to remain an economic source of energy for the consumer, when compared with other alternative sources of energy such as fuel oil and natural gas?
At this point we think it necessary to stop here with our comments and queries and start making a constructive contribution by allocating, at a Regional level and for each consumer sector, the amounts of coal foreseen by the Plan.

REGIONAL CONSUMPTION

The consumer areas taken into consideration for a Regional study are as follows:

- ENEL power stations
- Cement factories
- Brick-works
- Self-producing plants of electric power and industrial steam.

A. ENEL Power stations

Overleaf is a table with the heading: THE COAL HEATING CAPACITY OF THE ENEL POWER STATIONS in which we give a list, for each plant, of the number of MW installed or expected to be built by 1990, should the maximum hypotesis of the coal Plan prove to be correct.
As regards the new coal power stations, we indicate the exact location of some, such as Gioia Tauro, Taranto and Bastida Pancarana; others instead are indicated by the name of the Region only - e.g. Tuscany, Emilia Romagna, Abruzzi, Sardinia and Sicily.
As regards the already existing power stations, we indicate the MW operating on coal and the conversion of the existing units which should be put into practice by 1985.
All in all, ENEL's thermal capacity should reach around 25.500 MW by 1990, with a coal consumption estimated at around 38 million tons.
The stage for approaching this goal could be expressed in the following amounts:

1980	1985	1990
4,95 million	8,15 million	37,5 million

THE COAL HEATING CAPACITY OF THE ENEL POWER STATIONS

r Plants No. units x MW	Coal Consumption 10^6 MT / Year			Unloading Port	lers number, length and Draft						Vessels' Capacity fully laden		Unloading -r. for each crane	
					Number		Lenght m.t.		Draft m.t.		D W T		Number MT/hour	
	1980	1985	1990		Present	Future	Present	Future	Present	Future	Present	Future	Present	Future
FUSINA (2x170+2x320 MW)	1.50	1.20	1.20	Fusina	1	-	450	-	10.5	12.-	24,000	35,000	2x1,000	-
GENOVA 2x70+1x150 MW)	0.30	0.20	0.20	Genova	1	-	190	-	10.5	-	24,000	-	2x430	-
LA SPEZIA (2x320+2x600 MW)	1.25	1.50	1.50	La Spezia	2	-	200	250	13.5	-	55,000	-	2x550	2x550+1x1200
MARGHERA (2x70 MW)	0.20	0.20	0.20	Marghera	1	-	200	-	9.5	-	16,000	-	2x350	-
MONFALCONE (2x160 MW)	0.40	0.35	0.35	Monfalcone	1	-	300	-	7.5	9.-	6,000	-	2x500	-
SULCIS (2x240 MW)	0.25	0.70	0.70	Porto Vesme	1	-	190	-	9.-	-	10,000	-	6600 t/day	-
VADO LIGURE (4x320 MW)	1.05	2.00	2.00	Vado Ligure	1	-	160+60	200+60	12.-	14.-	50,000	60,000	2x350	2x550
BRINDISI (4x320 MW)	-	2.00	2.00	Brindisi	1	-	250+50	-	9.5	14.-	18,000	70,000	-	2x750
MILAZZO S.F. (4x160+2x320 MW)	-	-	2.00	Milazzo	-	1	-	290+160	-	19.-	-	120,000	-	2x1,500
ABRUZZI (4x660 MW)	-	-	2.50	Vastò	-	2	-	250	-	13.-	-	50,000	-	2x1,500
CALABRIA (4x660 MW)	-	-	5.00	Gioia Tauro	-	2	-	350	-	15-18	-	80-150,000	-	2-3x1,500
CHIVASSO (2x320 MW)	-	-	1.00	Savona	1	-	140	255+70	10.5	15.-	24,000	80,000	4x300	2x2000
EMILIA ROMAGNA (3x660 MW)	-	-	after '90	Ravenna	-	2	-	250	9.4	11.5	14,000	30,000	-	4x750
BASTIDA PANCARANA (2x660 MW)	-	-	2.50	Savona	1	-	140	255+70	10.5	15.-	24,000	80,000	4x300	2x2000
PIOMBINO (4x320 MW)	-	-	2.00	Piombino	-	2	-	350	-	20.-	-	150,000	-	4x2500
TOSCANA (4x660 MW)	-	-	5.00	Piombino	-	2	-	350	-	20.-	-	150,000	-	4x2500
PUGLIA (4x660 MW)	-	-	5.00	Tarante	-	2	-	350	-	18-19	-	150,000	-	3x1,500
SARDEGNA (4x320 MW)	-	-	2.00	Oristano	-	2	-	250	9.5	12.-	-	35,000	-	2x750
SULCIS (1x240 MW)	-	-	0.35	Porto Vesme	1	-	190	-	9.-	-	10,000	-	6600 t/day	-
SICILIA (5x320 MW)	-	-	2.00	?										
	4.95	8.15	37.50											

1980 - 1985 - 1990

ENEL - Regional Coal consumption

('000 T.)

	1980	1985	1990
Piemonte			
Chivasso 640 MW	-	-	1000
Liguria			
Genova + La Spezia + Vado = 3410 MW	2600	3700	3700
Lombardia			
Bastida P. 1320 MW	-	-	2500
Veneto			
Fusina + Marghera = 1120 MW	1700	1400	1400
Trentino Alto Adige	-	-	-
Friuli Venezia Giulia			
Monfalcone 320	400	350	350
Emilia Romagna (1980 MW)	-	-	after '90
Toscana Piombino+2640 mw = 3280 MW	-	-	7000
Marche	-	-	-
Umbria	-	-	-
Lazio	-	-	-
Abruzzi (2640 MW)	-	-	2500
Molise	-	-	-
Campania	-	-	-
Puglia			
Taranto + Brindisi = 3920 MW	-	2000	7000
Basilicata	-	-	-
Calabria			
Gioia Tauro (2640 MW)	-	-	5000
Sicilia			
Milazzo + 1920 MW = 3200 MW	-	-	4000
Sardegna			
Sulcis + 1280 MW = 2000 MW	250	700	3050
	4950	8150	37500

While examining the plan of the new power stations, the first consideration we wish to make is that, in the event of there being priority or flexibility factors, it seems logical that the first coal power stations to be built should be those situated by the sea.

The first exception is the power station at Chivasso (640 MW), with annual coal requirements of about one million tons, which depends heavily on the port of Savona (via cable-way) and on the depot of Cairo. On both of these rely the cement factories, brick-works and the self-producing palnts of electric power and industrial steam situated in the hinterland, as well as the Cokitalia Co. of course, remaining within the sectors of steam coal and coke.

In order to solve both these problems, the cable-way of Savona should be equipped to receive more than 4 million tons a year by 1990, which means radically changing the existing structures or making definite choices about the ultimate consumers.

The station of Bastida Pancarana (1320 MW), with annual coal requirements of approximately 2.5 million tons should, by exclusion, depend on the port of Genoa and the railways which, however, seem to have extremely serious technical problems in ensuring a continuous flow of traffic between Genoa and Bastida. Another solution might be that of trasporting coal on barges along the river Po. Considering the limitated capacity of this type of craft, the transshipment to the depots in the North Adriatic and the secondary means of transport, it seem to us that the main cost of ex-burner coal requires deeper investigation. In our allocation for each port we placed 100% of Bastida's requirements on Savona. As regards the depots that could serve both the existing stations and those being planned to come into operation by 1990, the solution might be determined either on a Mediterranean or a national level.

On a Mediterranean level, there are at least three areas of influence for coal terminals:

- The Northern Mediterranean, which includes Italy as far as Civitavecchia, the South of France and the Spanish coast as far as Tarragona.
  At the moment, the harbour which has almost been completed is the one at Fos (Marseilles); it has been organized to receive up to 200.000 tpl and reload ships of every capacity including barges of 8-10.000 dwt. Also being planned is the terminal at Tarragona in Spain, whereas the only existing plan for Northern Italy is that at Vado Ligure which could reduce the load expected for the Savona Cableways.
- The Central North Adriatic, which includes Italy from Trieste down to Bari (?), Austria and South East Germany. At the moment the only station operating in the Adriatic is the one at Bakar (Fiume) which, however, does not appear to have the possibility of expansion necessary to meet the requirements of the above mentioned countries. Italy has great possibilities in Trieste due to its favourable position regarding Austria, East Germany and its proximity to the already existing coal power stations of Monfalcone, Marghera and Fusina as well as those being built in Emilia Romagna, Abruzzi and Bastida Pancarana (in the event

of this latter being supplied via the Po river) - and thanks to its depths, this port could become a coal terminal of primary importance.

- The South Mediterranean which includes the Italian coast from Civitavecchia to Brindisi and the islands of Sardinia and Sicily; Southern Portugal, Southern Spain, Greece and Cyprus. In this area many projects for new terminals are being studied: at least two in Southern Spain (Algeciras, Carboneras) and two in Greece (Salaminis ?), though Italy has a greater chance of success if one considers that one of the strong points of a coal port is to be able to count on a high and constant absorption *in loco*. This is the case of Gioia Tauro, Taranto and Palermo. However, at the depot being built at Gioia Tauro there is already an annual demand of about 5 million tons; the same applies to Taranto, with the additional traffic in this port of ships from the Italsider Co. Lastly, Palermo can count on the foreseen 1920 MW of coal in Sicily (approx. 2 million tons of coal), as well as 1280 MW of coal from Milazzo (approx. 2 Million tons of coal).

  Recent studies on coal depots indicate the minimum annual traffic on order in 10 million tons, so as to equip a port to receive ships larger than 120.000 dwt and unload them as quickly as possible, and have equipment adaptable to the movement, storage and reloading operations onto smaller ship, railway trucks or road-trains. Consequently, one of these ports should be equipped to handle traffic of at least 20 million tons, taking into account the requirements of other neighbouring countries also. On these levels, the Italian tariffs would be unbeatable. However, this does not appear to be the tendency hoped for in the Plan, judging by the launching of the building of the Milazzo depot, after which will certainly follow the setting-up of other power stations by the sea, with the objective of attaining a gradual self-sufficiency for the direct arrivals from exportin countries.

B. Cement factories

This industry, a strong consumer of heavy fuel oil, was the first in Italy and in Europe, to point the way towards using coal. The plans and the time limits indicated back in 1976 for the conversion to coal have been respected. Taking into consideration only the existing cement factories in the hinterland of the Italian ports which have enough equipment and space to receive and disembark coal economically, and taking into account the conversions already put into effect and those at an advance stage of research, we can arrive at the forecast of consumption listed in the table overleaf.

Unfortunately this industry is heavily penalized by the limited use of coal with a sulphur content not higher than 1%.

1981 - 1985 - 1990

CEMENT WORKS - Regional Coal consumption

	1981	1985	1990
Piemonte	280	420	470
Liguria	-	25	25
Lombardia	530	900	950
Veneto	270	450	510
Trentino Alto Adige	-	30	30
Friuli Venezia Giulia	-	80	110
Emilia Romagna	100	280	300
Toscana	80	150	180
Marche	-	80	80
Umbria	70	200	250
Lazio	-	330	360
Abruzzi	30	100	100
Molise	-	30	30
Campania	-	210	240
Puglia	50	190	220
Basilicata	-	70	75
Calabria	-	155	180
Sicilia	90	300	350
Sardegna	20	200	240
	1520	4200	4700

This disposition does not at all consider that in this production process the sulphur is fixed as sulphates and therefore is not emitted into the atmosphere. In the event if this restriction not being removed, the accelerated process of conversion to coal could be halted owing to the limited availability of supplies of these types of coal, their concentration in few geographical areas and strong competition from thermoelectric power which is also subject to the same restriction in sulphur content.

As regards maritime transport, the cement industry can benefit greatly from the terminals, as those in the process of being converted are nearly all situated in the hinterland of the small and medium-size ports along the Italian coasts.

A constant supply of small-to-medium size ships or barges, together with good will on the part of the Port Authorities for what concerns the berths, unloading equipment and ground space, could solve many of the supply and transport problems of this industry without having to resort to massive investments. The coal could be ferried from the coastal depots to the cement factories by road for the most part and, in fewer cases, by rail.

Finally, we must not forget the role being played by the cement industry in the use of volatile ashes which come from the power stations. In fact this industry absorbs most of the ashes from thermoelectric stations, as they can be mixed with clinker according to techniques that do not damage the end product. The next important client of the thermoelectric works for volatile ashes will be concrete.

The Italian cement industry is perhaps the only example in Europe of private investments aimed at an ever-decreasing dependence on oil.

Here is some significant data:

- the following types of fuel, converted to heavy fuel oil of 9800 calories, have taken part in the production of cement according to the percentage values listed below:

	1977	1978	1979	78/79
Fuel oil	71,8%	74,9%	73,2%	- 1,7%
Natural gas	22,7%	19,-%	17,1%	- 1,9%
Coal	4,2%	5,6%	9,6%	+ 4,0%
Others	1,3%	0,5%	0,1%	- 0,4%

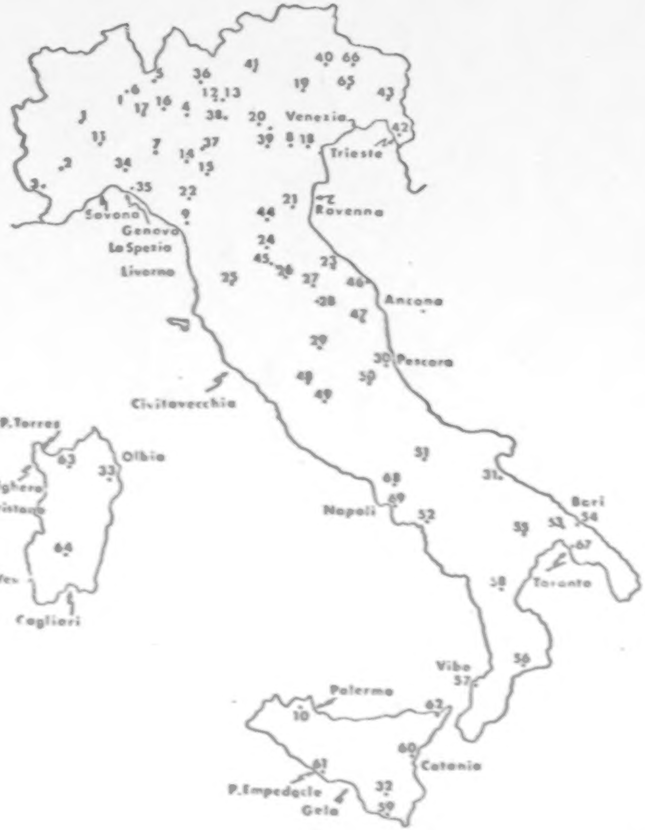
Against the production of cement in the same years of:

	1977	1978	1979	78/79
'000 TONS	38.352	38.326	39.283	+ 2,5%

- The forecasts of fuel consuption indicate that by 1985 coal could exceed 70%. Listed below is the position of the number of power stations at the end of 1979, subdivided into utilized energy sources:

ITALY	Fuel Oil	Fuel Oil Methane Others	Fuel Oil Methane	Fuel Oil Methane Coal	Fuel Oil Coal	Total
NORD	23	3	8	1	9	44
CENTRO	6	1	8	-	3	18
SUD	10	2	5	-	1	18
ISOLE	8	-	1	-	1	10
	47	6	22	1	14	90

By 1985 the number of coal power stations could increase to 69 as indicated in the inset map overleaf.



ITALY - coal fired cement works

Coal fired at the beginning 1981

1. Morano Po (Unicem)
2. Borgo S.D. (Italcementi)
3. Robilante (Buzzi)
4. Calusco d'A. (Italcem.)
5. Merone (Merone)
6. Caravate (Rusconi)
7. Broni (Fibronit)
8. Monselice (Italcementi)
9. Carrara (Italcementi)
10. Isola d. Femmine (Italcem.)

Coal fired within 1981

11. Casale M. (Bargero)
12. Tavernola B. (Sebina)
13. Tavernola B. (Sina)
14. Piacenza (Unicem)
15. Lugagnano (Unicem)
16. Cassago B. (Cassago)
17. Termate (Ticino)
18. Monselice (Monselice)
19. Pederobba (Piave)
20. Fumane (Verona)
21. Ravenna (Anic)
22. Borgotaro (Fibronit)
23. S. Arcangelo (Unicem)
24. Settimello (Unicem)
25. Testi (Sacci)
26. Bibbiena (Sacci)
27. Gubbio (Barbetti)
28. Gubbio (Colaiacovo)
29. Spoleto (Cementir)
30. Pescara (Adriatico)
31. Barletta (Barletta)
32. Ragusa (Anic)
33. Siniscola (Unicem)

Coal fired after 1981

34. Arquata S. (Cementir)
35. Genova (Italcementi)
36. Albino (Italcementi)
37. Piacenza (Rossi)
38. Rezzato (Italcementi)
39. Este (c. Zillo)
40. Ponte Alpi (Savic)
41. Sarche di C. (Trident.)
42. Trieste (Italcementi)
43. Cividale F. (Italcem.)
44. Savignano P. (Italcem.)
45. Pontassieve (Italcem.)
46. Senigallia (Italcem.)
47. Castelraimondo (Porto Rec.)
48. Guidonia (Unicem)
49. Colleferro (Italcem.)
50. Scafa (Italcementi)
51. Guardiaregia (Italcem.)
52. Salerno (Italcem.)
53. Modugno (Italcementi)
54. Monopoli (Italcementi)
55. Matera (Italcementi)
56. Catanzaro (Italcementi)
57. Vibo Valen. (Italcem.)
58. Castrovillari (Italc.)
59. Modica (I.S.C.)
60. Catania (Italcementi)
61. P.to Empedocle (Italc.)
62. Villafranca T. (Italc.)
63. Scala di G. (Italcem.)
64. Samatzai (Italcementi)

Conversions under considerat:

65. Fanna (C. Zillo)
66. Travesio (Friulana)
67. Taranto (Cementir)
68. Maddaloni (Cementir)
69. Napoli (Cementir)

C. Brickworks

Because of the continuing energy crisis and particularly of the increase in the price of oil products, the brick industry has also begun to consider the possibility of coverting some of their works to coal, as has recently happened in the cement industry.
In 1978 the total annual production of the brickworks in Italy amounted to approximately 18.000.000 tons, divided as follows:

a. Factories with a productivity capacity ≥ 50.000 t/a

NORTH	:	119
CENTRE	:	36
SOUTH	:	14
ISLANDS	:	10
TOTAL		179

b. Factories with a productivity capacity ≤ 50.000 t/a

NORTH	:	332
CENTRE	:	134
SOUTH	:	150
ISLANDS	:	74
TOTAL		690

The corresponding annual production proves to be equal to ('000 t):

a.

NORTH	:	2800
CENTRE	:	1700
SOUTH	:	630
ISLANDS	:	480
TOTAL		5610

b.

NORTH	:	6800
CENTRE	:	2100
SOUTH	:	2200
ISLANDS	:	990
TOTAL		12090

c. The general total production amounted thus to 17.700.000 tons a year.
If we make a comparison with the other European Nations, it may be noted that Italy ranks as one of the highest producers in the brick industry.
The most recent statistics available are those of 1977; here is a detailed list:

EUROPEAN BRICK PRODUCTION - 1977

	Solid and semi-solid bricks: '000 m^3	Hollow bricks '000 m^3	Materials for Horizontal structures: ' 000 m^2	Roofing materials ' 000 m^2
Germany	11500	/	/	17000
G. Britain	6750	/	/	1200
Italy	4100	6500	90000	18300
Spain	3800	9750	28800	9200
Holland	2900	/	/	2900
Belgium	2800	/	2000	/
Austria	1900	/	2400	120
France	950	6050	10500	40600
Denmark	890	/	/	650
Switzerland	800	55	/	2800
Sweden	380	/	/	600
Finland	280	/	/	/
Norway	50	/	/	/

The barred columns indicate that the production is non-existent or negligible.

- Types of kilns

Recent statistic surveys carried out by ANDIL on a total of 606 kilns of associated industries have led to the following result:

- 254 of the fixed flame tunnel type are run on fuel oil;
- 216 of the Hoffman "teste tagliate" type, 176 of which are run on fuel oil and 40 on methane;
- 100 of the traditional Hoffman type (mobil flame) of which 85 run on fuel oil and 15 on methane;
- other types (Migeon, Zig-Zag) of which 24 run on fuel oil and 12 on methane.

The fact that emerges from the above survey is that the large and medium-size industries are not burning coal at the present time. We must note, however, that the Hoffman kilns and their derivatives can be converted to coal for a reasonable sum as they were originally planned to be coal-operated.

- Energy consumption

The total consumption of energy from 1955 to 1978 is listed in the following table where the constant decrease in the use of coal il noted up to 1977. The few hundred tons are reserved for the Hoffman kilns in small industries.

Year	Foreign coal t	National coal t	Lignite t	Fuel oil t	Methane 10^3 m^3	Power Electric 10^6 kwh
1955	478.488	104.114	310.437	32.117	4.951	n.r.
1965	64.014	10.594	4.910	912.111	56.784	557
1970	10.770	-	1.359	1.712.843	110.898	1.000
1971	5.779	-	153	1.352.236	114.635	n.f.
1972	2.276	8	30	1.298.417	160.724	935
1973	1.979	-	10	1.595.571	236.060	n.r.
1974	1.793	-	-	1.587.802	364.384	1.132
1975	1.048	-	-	1.311.496	392.013	n.f.
1976	760	-	-	1.210.469	482.028	1.040
1977	602	-	-	1.099.395	612.965	1.048
1978	815	-	-	1.297.379	516.636	1.116

n.f. = data not found

The consumption of energy to produce 100 Kg of producte is the function of the mixture of the materials used, the shape of the brick-works and its use. By averageing this value on the sum total of the production, the following values are obtained referring to 1978:

7 Kg of fuel oil/100 Kg of bricks = 11 Kg of coal/100 Kg of bricks; 5.3 KwH/100 Kg of bricks.

If the natural gas and coal were converted into equivalent tons of fuel oil, the consumption in tons would be obtained equal to:

1976	1977	1978
1.605.000	1.600.000	1.720.000

The percentage of fuel oil compared with the total consumption is:

1976	1977	1978
75%	69%	75%

If we make a similar transformation this time in equivalent tons of coal, we obtain a consumption in tons equal to:

1976	1977	1978
2.621.000	2.613.000	2.809.000

As is evident, the consumption of electric energy has not been converted in so far as it is always utilized under this form (illumination, auxiliary systems such as sod-breackers, mixing machines, driers and so on).
Let us suppose that the consumption of equivalent tons of coal for the years 1979-1980 reaches 2.800.000 mtons and that in the first five years of the 1980 there is an increase of 50/100.000 tons per year. The result in '000 t. would be:

1981	1982	1983	1984	1985
2850	2900	2950	3000	3000

We can realistically assume that the brick factories may be converted to coal according to the following percentages where we have wished to point out the slow start, due to the necessary periods of trial.

1981	1982	1983	1984	1985
-	-	5%	7%	10%

The corresponding consumption of coal is ('000 t.):

1981	1982	1983	1984	1985
-	-	140	200	300

Looking at the future as far as 1990, we can consider that the consumption of coal might be about 500.000 tons.

The regions fundamentally involved in this conversion are those in Northern Italy and some in central Italy, whereas the Southern regions will presumably have a later development to natural gas, both because of their characteristic and their proximity to Algeria.
Consequently, the ports that could be used as coal terminals are:

a. Savona/La Spezia, already in operation, which can serve the North-west of Italy through the park of San Giuseppe di Cairo Montenotte and the La Spezia hinterland.

b. CIVITAVECCHIA, not yet in operation, which could serve the central Mediterranean area;

c. 'ANCONA, already experimented, which could serve the central Adriatic coast;

d. MARGHERA (Venice)/Ravenna, already experimented, which could serve the Veneto and Emilia Romagna;

e. TRIESTE, still being planned, which could supply the minor ports on the Adriatic as well as Austria and South Germany.

1980 - 1985 - 1990

BRICK WORKS - regional consumption of coal

('000 T.)

	1980	1985	1990
Piemonte	-	40	70
Liguria	-	20	30
Lombardia	-	50	90
Veneto	-	40	70
Trentino Alto Adige	-	-	-
Friuli Venezia Giulia	-	20	30
Emilia Romagna	-	45	80
Toscana	-	20	30
Marche	-	15	30
Umbria	-	-	-
Lazio	-	50	70
Abruzzo	-	-	--
Molise	-	-	-
Campania	-	-	-
Puglia	-	-	-
Basilicata	-	-	-
Calabria	-	-	-
Sicilia	-	-	-
Sardegna	-	-	-
	-	300	500

- Conclusion

Thus there is the concrete possibility of transforming the kilns to coal in the brick manufacturing industry, although in a less rapid way than that which occurred in the cement factories and the energy producers. The buildings most suitable for this type of conversion are those of medium-to-large size, whereas those of pseudo-familiar conduction at present in use do not justify the investment expense.

D. Self-producing manufacturers of electric power and industrial steam

The use of coal for the self generation of electric power and process steam is pointed out in the Plan as an important strategic objective in order to reduce the consumption of fuel oil.
The thermal capacity installed in the self-producers and the estimates for the future could be the following (expressed in MW):

1979	1980	1985	1990
5473	5913	6419	7749

In the hypothetical case that all the incremental capacity from 1990 were coal, we would have the following requirements:

	1985	1990
Incremental MW	505	1836
'000 tons of coal	1000	3672

and in the hypothetical case that of the capacity installed in 1980 about 20% were transformed to coal (1200 MW), having recourse to new techniques such as gasification and liquid bed combustion, the additional requirements of coal could be approx. 2.4 million tons. Consequently, the total requirements in 1985 might be 3.4 million tons and 6 million in 1990. We do not consider it opportune to follow this line, however, and prefer to try to individualize, one by one, the sectors where the use of coal for self-generation of electric power and steam can be most easily set up:

- the alluminium sector
- the petrochemical sector
- the iron and steel sector
- the paper-making sector

In the alluminium sector in particular, we can point out the plants of Euralllumina and Alsar at Portovesme (Sardinia) and the Sava at Marghera.
In the petrochemical sector, particular attention has been drawn towards the use of coal in the ANIC palnts situated near the ports of Ravenna and Gela. Other companies will probably follow this trend.

In the iron and steel sectors there are two possible openings for coal: firstly, the same proposed for the self-producing manufacturers of electric power and, secondly, in the form of coal-oil for the injecting of fuels into blast furnaces. An initial estimate made by Italsider Company on its possible internal uses of coal gives a figure of around one million tons. The FIAT Company is also studying different possibilities for using coal in its factories; perhaps the most interesting being that tending towards gasification.
Finally, the paper-making industry has just begun research on the comparative economic advantages of using different sources of energy with particular emphasis on coal.
At this point it is difficult to forecast definite figures, but we can attempt to make an estimate as follows:

('000 T.)

Requirements of coal steam	1985	1990
Alluminium	800	1100
Petrochemical	300	1100
Iron and steel, cars	500	1300
Paper	100	300
Others	50	100
TOTAL	1750	3900

The following table divides these estimates at a regional level.

E. Municipal electric power plants

The Azienda Servizi Municipalizzati - Brescia are considering to convert their two plants to coal:

- Ponti sul Mincio (5 km. South from Peschiera) = 240 MW
- Brescia 70 MW

The total annual coal consumption could be 300-400 MT, steam coal could be transported by railways from S. Giuseppe (Savona) or from Marghera.
A railways link is projected from Peschiera sul Garda and Ponti sul Mincio.

1980 - 1985 - 1990

SELF-PRODUCING PLANTS - Regional coal consumption

('000 T.)

	1980	1985	1990
Piemonte	-	350	500
Liguria	-	-	200
Lombardia	-	-	400
Veneto	-	200	400
Trentino Alto Adige	-	-	-
Friuli Venezia Giulia	-	50	100
Emilia Romagna	-	100	300
Toscana	-	100	200
Marche	-	50	100
Umbria	-	-	-
Lazio	-	-	-
Abruzzo	-	-	-
Molise	-	-	-
Campania	-	-	-
Puglia	-	100	500
Basilicata	-	-	-
Calabria	-	-	-
Sicilia	-	200	400
Sardegna	-	600	800
	-	1750	3900

CONCLUSION

Summarising the estimates of the regional consumption of coal steam according to its use in each sector, we have obtained the following figures which reflect by and large the indications of the Plan:

		('000 T.)
	1985	1990
ENEL Power stations	8.150	37.500
Cement factories	4.200	4.700
Brick-works	300	500
Self-producers	1.750	3.900
Municipal power plants	200	400
TOTAL	14.600	47.000

The commitment to the development of these objectives requires the full collaboration of the Regional Departments which, through this report, can have a means of assessing and analysing the influence of coal in their energy budget plans up to 1990.

Coal is energy - perhaps not the most convenient but certainly the most immediately available, and the fact that they can have access to it means that the Regional Departments can have an alternative to oil and, consequently, greater security in the spheres of industry and employment.

It is right to make a thorough inquiry and research into all the environmental implications that are involved in the burning of coal, but once the rules to be followed have been established, definite steps must be taken, as it should be remembered that the time available for building power stations, ports or depots, warehouses and railways - all necessary for converting the factories from oil to coal, and for the launching of ships and barges'- is, in fact, less than a decade. From now until 1990, there are less than 9 years.

1980 - 1985 - 1990

Total Regional Consumption

('000 T.)

	1980	1985	1990
PIEMONTE	280	810	2040
LIGURIA	2600	3745	3955
LOMBARDIA	530	1150	4340
VENETO	1970	2090	2380
TRENTINO ALTO ADIGE	-	30	30
FRIULI VENEZIA GIULIA	400	500	590
EMILIA ROMAGNA	100	425	680
TOSCANA	80	270	7410
MARCHE	-	145	210
UMBRIA	70	200	250
LAZIO	-	380	430
ABRUZZI	30	100	2600
MOLISE	-	30	30
CAMPANIA	-	210	240
PUGLIA	50	2290	7720
BASILICATA	-	70	75
CALABRIA	-	155	5180
SICILIA	90	500	4750
SARDEGNA	270	1500	4090
	6470	14600	47000

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INFO  OCT-01   ADS-00   AID-07   INR-10   EUR-12   SS-10    CIAE-00
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UNCLAS SECTION 1 OF 5 GENOA 0892

FOR ROGER SINDELAR, USS SUBCOMMITTEE ENERGY AND MINERAL RESOURCES

E.O. 12065: N/A
TAGS: ENRG, US
SUBJ: SENATE HEARINGS ON COAL EXPORTS

REF: GENOA 0883

FOLLOWING IS NUOVA ITALSIDERS STATEMENT FOR THE SUBCOMMITTEE. PLEASE MAKE A COPY AVAILABLE TO ING. RENIER (REFTEL).

AMERICAS ROLE IN THE WORLD COAL EXPORT MARKET

WRITTEN SUBMISSION FOR THE HEARINGS ORGANIZED BY THE SUBCOMMITTEE ON ENERGY AND MINERAL RESOURCES OF THE UNITED STATES SENATE ENERGY AND NATIONAL RESOURCES COMMITTEE TO BE HELD ON NOVEMBER 10, 1981.

THANK YOU FOR HAVING INVITED US TO THIS HEARING ON COAL. FIRST OF ALL I WOULD LIKE TO INTRODUCE MY COMPANY TO YOU. NUOVA ITALSIDER BELONGS TO FINSIDER WHICH IS THE FIRST STEEL

PRODUCING GROUP IN EUROPE AND ONE OF THE BIGGEST IN THE WORLD: ITALSIDER IS THE SECOND SINGLE WORLDWIDE IMPORTER OF RAW MATERIALS. ITALSIDER PRODUCES ALMOST 12 MILLION TONS OF STEEL PER YEAR. SMALL QUANTITIES ARE ALSO EXPORTED TO THE STATES: IN 1980 ABOUT 20,000 TONS FOR A TOTAL VALUE OF 5 MILLION DLRS WHILE OUR COAL IMPORTS FROM THE U.S. AMOUNTED TO 260 MILLION DLRS IN 1980 AND 320 MILLION DLRS IN 1981. IN PARTICULAR I WOULD LIKE TO MENTION THE RECENT SUPPLY OF ABOUT 250 KM. OF PIPES FOR THE GAS PIPELINE UNDER CONSTRUCTION FROM ALASKA WHICH IS AN EVIDENCE OF THE HIGH TECHNICAL LEVEL REACHED BY ITALSIDER.

THE IRON ORE AND COKING COAL QUANTITIES ITALSIDER EXPECTS TO USE THIS YEAR ARE 17 MILLION TONS AND 18 MILLION TONS RESPECTIVELY. IN 1986 OUR REQUIREMENTS WILL FURTHER INCREASE BY 4 AND 1.5 MILLION TONS/YEAR RESPECTIVELY.

WITH REGARD TO RAW MATERIALS, MAY I MENTION SOME FACTS. WE WERE THE FIRST, MANY YEARS AGO, TO FINALIZE AN IMPORTANT AGREEMENT FOR THE LONG TERM SUPPLY OF IRONORE FROM BRAZIL FOR BLAST FURNACES. BRAZIL NOWADAYS HAS BECOME THE MAIN SOURCE OF SUPPLY TO EUROPE. NOW WE HAVE REPEATED THAT EXPLOIT WHICH WILL OPEN THE AMAZONIAN AREA TO THE WORLD WITH MUTUAL ADVANTAGES. IN 1965 WE WERE THE FIRST EUROPEAN STEEL MAKERS WHO BOUGHT IRON ORE FROM AUSTRALIA (THE FIRST SHIPMENT FROM AUSTRALIA WAS BOUND FOR JAPAN AND THE SECOND ONE FOR ITALSIDER).

IN ADDITION TO LONG TERM SUPPLY AGREEMENTS, BY WHICH WE MEET 100% OF OUR IRON ORE REQUIREMENTS, WE HAVE ALSO INTERESTS IN IRON ORE MINES IN MANY PARTS OF THE WORLD. WE INVEST ALSO IN COKING COAL MINES, ONE OF WHICH IS IN WEST VIRGINIA AND PRODUCE 600/700,000 TONS OF COKING COAL PER YEAR.
ALSO IN THE COAL FIELD, FOR INSTANCE, WE WERE THE FIRST TO REACH AN IMPORTANT LONG TERM COKING COAL AGREEMENT WITH POLAND

AND WE WERE THE FIRST IN EUROPE TO RECEIVE SUBSTANTIAL COKING COAL QUANTITIES FROM AUSTRALIA (NOW WE HAVE EVEN PART OWNERSHIP IN AN AUSTRALIAN MINE WHICH WILL START PRODUCTION IN 1983).

LET ME TELL SOMETHING NOW PARTICULARLY ABOUT OUR RELATIONSHIP WITH THE STATES.

ITALSIDER BOUGHT THE FIRST POCAHONTAS CARGO IN 1912 AS A CONSEQUENCE OF THE BRITISH MINERS STRIKE IN THAT YEAR. AT THAT TIME ITALY IMPORTED ALREADY 12 MILLION TONS OC COAL PER YEAR. TWO YEARS AGO ITALY IMPORTED ONLY A LITTLE OR MORE THAN THAT AND NOWADAYS IT IS ESTIMATED ITALY WILL IMPORT ANNUALLY 17 MILLION TONS APPROX.

IN THE POST-WAR PERIOD ITALSIDER BEGAN TO RECEIVE U.S. COKING COAL ON A REGULAR BASIS AND IN 1964 U.S. COKING COAL IMPORTS SUPPLIED VIRTUALLY 100% OF ITALSIDERS REQUIREMENTS, THEN AMOUNTING TO ABOUT 3.5 MILLION TONS.

THE MOST IMPORTANT AGREEMENT FOR AMERICAN COKING COAL WAS EXECUTED IN 1964 FOLLOWING A PROMOTIONAL ACTION CARRIED OUT VERY WELL BYTHE STATES.

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UNCLAS SECTION 2 OF 5 GENOA 0892

THE U.S. HAD PREPARED A VERY INTERESTING REPORT ENTITLED NATHAN REPORT , IF I REMEMBER WELL, WHICH WAS THE BASIS FOR THE LAUNCHING OF THE COKING COAL EXPORT POLICY.

THE U.S. MINERS WORKING CONDITIONS AND THE DANGER OF AN ENERGY CRISIS (EVEN AT THAT TIME THE EXCESSIVE POWER OF OIL COMPANIES AND THEIR POLICY BASED ONLY ON THE MAXIMUM PROFIT OBTAINABLE GAVE RISE TO CONCERN IN ENERGY IMPORTING COUNTRIES SUCH AS EUROPE IN GENERAL AND ITALY IN PARTICULAR) INDUCED US TO ADOPT A MORE DIVERSIFIED POLICY IN PURCHASING A RAW MATERIAL SO ESSENTIAL TO THE DEVELOPMENT OF THE ITALIAN INDUSTRY SUCH AS COKING COAL, WHICH IS OF COURSE INDISPENSABLE TO BLAST-FURNACES.

ITALSIDE RESUMED ITS CONTACTS WITH GERMANY, STARTED NEW RELATIONS WITH POLAND AND THE SOVIET UNION AND, AS A RESULT, IN 1970 ITALSIDERS COKING COAL REQUIREMENTS AMOUNTING TO 6.5 MILLION TONS WERE SUPPLIED 31% BY U.S., 36% BY GERMANY, 20% BY POLAND, 10% BY USSR AND 3% BY AUSTRALIA. THE REMARKABLE FALL IN PRODUCTIVITY RESULTING FROM THE LABOUR UNREST 0(DUE TO NEW HEALTH AND SAFETY REGULATIONS, ENVIRONMENTAL PROBLEMS, A.S.O.) LED TO DELIVERIES OF U.S. COKING COAL QUANTITIES IN THE FIRST HALD OF

THE 70S MUCH LOWER THAN CONTRACTED, ONLY ABOUT 60%.
ALREADY AT THAT TIME PURCHASING WAS COMPLETELY BASED ON LONG TERM AGREEMENTS OR EVER GREEN AGREEMENTS WITH TRADITIONAL AMERICAN COAL PRODUCERS.

MOREOVER THE IMPORTANT AGREEMENT CONCLUDED IN 1964 WAS FURTHER EXPANDED IN 1969 THANKS TO A FINANCIAL INVESTMENT BY ITALSIDER TO PROMOTE THE DEVELOPMENT OF A NEW POCAHONTAS MINE IN WEST VIRGINIA.

THE U.S. MINING INDUSTRY CRISIS, IN THE YEARS AFTER 1969, CREATED VERY SERIOUS PROBLEMS FOR ITALSIDER IN SPITE OF ALL THE PRECAUTIONARY MEASURES THAT HAD BEEN ALREADY TAKEN AND INDUCED US TO DEVELOP RELATIONS WITH AUSTRALIA, A SOURCE FROM WHICH, AS EARLY AS IN 1972, WE BEGAN TO TAKE DELIVERY OF COKING COAL IN QUANTITIES GREATER THAN 500,000 TONS.

ALL STEEL PRODUCERS EXPERIENCED MANY DIFFICULTIES IN THAT PERIOD AND MOST OF THEM LOST CONFIDENCE IN THE CONTRACTS THEN EXISTING WITH THE U.S. MINES. SUCH DIFFICULTIES WERE ALSO DUE TO THE EXCESSIVE ENTHUSIASM THAT THE U.S. MINES HELD AT THAT TIME FOR THE EMERGING JAPANESE CONSUMERS. HOWEVER, ITALSIDER MADE VERY EFFORT TO MAINTAIN ITS RELATIONS WITH THE MINES IN GOOD STANDING IN SPITE OF ADVERSE CIRCUMSTANCES. LATER SUCH A FRIENDLY ATTITUDE WAS APPRECIATED VERY MUCH BY THE MINES WHICH, IN THE MEANTIME, HAD RESUMED A SATISFACTORY LEVEL OF PRODUCTION BUT HAD LOST MANY CUSTOMERS. THUS, LITTLE BY LITTLE, ITALSIDERS IMPORTS FROM THE STATES INCREASED ONCE MORE TO SUBSTANTIAL TONNAGES.

IN 1981 WE SPENT MORE THAN 300 MILLION DLRS FOR OUR U.S. COKING COAL IMPORTS AND A FURTHER 60 MILLION DLRS WERE SPENT BY ALGERIA. THE PURCHASED QUANTITY WAS 5 MILLION TONS FOR ITALSIDER PLUS ONE MILLION TONS FOR ALGERIA. WE POINT OUT THAT SINCE 1978, THAT IS

SINCE THE CONSTRUCTION OF THE LAGERIAN COKING PLANT (SUPPLIED BY THE SOVIET UNION), WE WERE APPOINTED AS CONSULTANTS FOR THEIR COKING COAL SUPPLY. THUS, COKING COAL FOR ALGERIA IS NOW PURCHASED ENTIRELY FROM THE STATES UNDER THE SAME CONDITIONS PROVIDED IN OUR CONTRACTS, ACCORDING TO AN AGREEMENT REACHED WITH OUR U.S. SUPPLIERS.

RECENTLY ANOTHER TROUBLING FACTOR INTERVENED BETWEEN THE MINES AND ITALSIDER GREATLY TAXING OUR PATIENCE. BUT, BEFORE SPEAKING OF THE PRESENT SITUATION AND OF THE YEARS TO COME, I WISH TO ADD SOME OTHER INFORMATION.

ALREADY IN 1936 ITALSIDER WAS THE FIRST TO PLAN THE CONSTRUCTION OF A STEEL PLANT ON THE SEA COAST (I SPEAK OF THE GENOA CORNIGLIANO PLANT) WITH A VIEW TO SUPPLYING IT COMPLETELY WITH IMPORTED RAW MATERIALS. BECUASE OF THE WAR IT BEGAN OPERATING ONLY IN 1954, AND THEN WE FELT THE NECESSITY TO HAVE A SPECIALIZED FLEET FOR THE TRANSPORTATION OF RAW MATERIALS. THEREFORE WE ORDERED MANY VESSELS FROM 15,000 UP TO 80,000 TONNERS. (WE HAVE ALSO LARGER VESSELS WHICH ARE EMPLOYED AT PRESENT ONLY FOR TRANSPORTING IRON ORE TO THE PORT OF TARANTO WHICH CAN ACCOMODATE VESSELS UP TO 300,000 DWT). THESE VESSELS KEPT PACE WITH THE GROWTH OF THE PIERS AT HAMPTON ROADS, THANKS TO THE CLOSE COOPERATION WITH THE U.S. RAILROAD COMPANIES WHO MANAGE THEM.

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THEREFORE THE CHARACTERISTICS OF OUR VESSELS EXACTLY SUIT THE FEATURES OF THE PIERS AT HAMPTON ROADS, A FACT THAT APPEARED MUTUALLY USEFUL IN PARTICULAR DURING THE RECENT CONGESTION AT THE U.S. COAL LOADING TERMINALS.

LE TUS REVERT NOW TO THE NEW TROUBLING FACTOR MENTIONED BEFORE.

IN 1979 THE OIL CARTEL DOUBLED THE BARREL PRICE AND SINCE THEN COAL HAS BECOME A COMPETITIVE ENERGY SOURCE. AT THE SAME TIME POLAND REDUCED ITS COAL EXPORTS OWING TO THE WELL-KNOWN EVENTS. THE THEN LANGUISHING COAL MARKET RECOVERED AGAIN AN A NEW EXCESSIVE ENTHUSIASM, THIS TIME FOR STEAM COAL, DEVELOPED IN THE STATES. A GREAT NUMBER OF NEW STEAM COAL BUYERS AFTER PURCHASING ALL THE AVAILABLE COAL FROM SOUTH AFRICA AND AFTERWARDS FROM AUSTRALIA, TURNED TO THE U.S. MARKET. THE RESULT WAS A TERRIFIC CONGESTION AT THE U.S. PORTS WHICH WERE BUILT AND EQUIPPED FOR THE XPORT OF COKING COAL AND NOT FORTHE EXPORT OF STEAM COAL. NO DISTINCTION WAS MADE BETWEEN TRADITIONAL AND NEW CUSTOMERS SO THAT, FOR INSTANCE, ITALSIDER WHICH MORALLY IS ONE OF THE PROMOTING PARTNERS OF THE U.S. COAL PORTS, SINCE IT HAS ALREADY PAID FOR THEM THROUGH THE HIGH RAILROAD FREIGHT RATES IT HAS BEEN HANDING OVER FOR SO MANY

YEARS, SUFFERED EITHER DIRECT OR INDIRECT DAMAGES OVER TWELVE MONTHS FROM MID-1980 TO MID-1981 FOR AN AMOUNT OF ABOUT 200 MILLION DLRS. (EXCLAMATION MARK).

I LET YOU IMAGINE HOW FURIOUS WE WERE. (EXCLAMATION MARK).

THIS SITUATION BECAME MORE DRAMATIC BECAUSE OF THE MINERS STRIKE THAT LASTED TWO AND A HALF MONTHS. AT THAT TIME I FLEW TO WASHINGTON AND, THANKS TO THE ASSISTANCE OF THE U.S. EMBASSY IN ROME, I HAD TWO MEETINGS WITH THE UMWA PRESIDENT AND WITH SOME OFFICIALS OF THE US DEPARTMENT OF COMMERCE. THE DANGER OF STOPPING OPERATIONS WAS AVERTED AT THE VERY LAST MOMENT. COULD YOU IMAGINE THE CONSEQUENCES WHICH WOULD HAVE ENSUED FROM THE STOPPING OF OPERATIONS AT OUR PLANTS, WHERE 50,000 WORKERS ARE DIRECTLY EMPLOYED AND AT LEAST THE SAME NUMBER OF WORKERS INDIRECTLY EMPLOYED IN AREAS POLITICALLY AND SOCIALLY VERY DELICATE? (THE COMMUNIST PARTY OF ITALY VIRTUALLY CONTROLS THE UNIONS).

REVERTING TO THE PROBLEM OF COAL IN GENERAL, WE HAVE SOME DOUBTS THAT AMERICAN STEAM COAL, IF NOTHING IS PROMPTLY DONE, WILL BE COMPETITIVE IN THE FUTURE IN COMPARISON WITH OTHER SOURCES OF SUPPLY WHICH HAVE LOWER COSTS AND ARE ALREADY DEVELOPING PROJECTS TO INCREASE THEIR SHARE IN THE MARKET, IN TERMS OF MINES, RAILROADS, PORTS, A.S.O. THIS MAY BE THE REASON WHY MANY U.S. OPERATORS DO NOT OPEN NEW MINES WITHOUT LONG TERM AGREEMENTS WHILE, ON THE OTHER SIDE OF THE ATLANTIC, EUROPEAN STEAM COAL CONSUMERS DO NOT SEEM READY TO EXECUTE LONG TERM CONTRACTS.

ANOTHER REASON MIGHT BE THE FEELING THAT OIL COMPANIES WANT TO EXTEND THEIR CONTROL ALSO TO OTHER ENERGY SOURCES SUCH AS URANIUM AND COAL, THIS IS A VERY UNEASY FEELING TO US.

ANOTHER ASPECT OF THE PROBLEM, PERHAPS CONNECTED OR NOT WITH THIS FEELING IS THAT THE U.S. GOVERNMENT DOES NOT CLEARLY OPPOSE BILLS TROUBLING ITS ALLIES. THIS IS THE CASE OF THE DISCRIMINATION IN BERTHING COAL VESSELS FOR EXPORT IN FAVOUR OF U.S. COASTAL VESSELS OR OF OTHER BILLS SUCH AS THE ONE REQUESTING THAT 40& OF ALL BULK GOODS EXPORTED FROM THE STATES (GRAINS, COAL, A.S.O.) BE TRANSPORTED WITH U.S. FLAG VESSELS (BUT THE STATES HAS N NOT SO GREAT A FLEET TO DO THIS) OR RUMORED LAW PROVISIONS SUCH AS THE ONE SUGGESTING TO LIMIT TO 5& THE INTERESTS OF FOREIGN COMPANIES IN U.S. COMPANIES OPERATING IN THE ENERGY FIELD ON GOVERNMENTAL CONCESSIONS. THESE ARE ALL CONFUSING THINGS WHICH DO NOT HELP TO BUILD CONFIDENCE.

OUR COKING COAL IMPORTS ARE CENTERED ON THE U.S. SOURCE AND WE HAVE TO REMIND YOU THAT COKING OCAL IS NOT AN ENERGY SOURCE BUT A RAW MATERIAL FOR THE STEEL INDUSTRY FOR WHICH IT IS IMPERATIVE TO MINIMIZE COSTS IN ORDER TO GUARANTEE ITS SUBSISTENCE. THIS MEANS - AND WE STRESS IT ONCE AGAIN - THAT COKING OCCOAL, BEING CONNECTED WITH THE STEEL INDUSTRY, HAS A STEADY AND TIMELY INDUSTRIAL RELATIONSHIP WITH CONSUMERS AND THEREFORE IT IS NECESSARY IN THE FUTURE DEVELOPMENT OF U.S. COAL EXPORTS THAT AUTHORITIES, PRODUCERS AND RAILROADS BEAR WELL IN MIND THEIR RESPONSIBILITY FOR A SUPPLY DESTINED, AS MENTIONED BEFORE, TO KEY-INDUSTRIES IN ALLIED COUNTRIES#THESE KEY-INDUSTRIES NEED TO CONTINUE AN UNINTERRUPTED PRODUCTION, THUS GUARANTEEING THE EMPLOYMENT ON THEIR WORKERS#

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FAILING THIS, VERY SERIOUS SOCIAL AND POLITICAL PROBLEMS WOULD DEVELOP, WHICH WOULD AFFECT THE ABILITY OF ALLIED COUNTRIES TO MONOR THEIR COMMITMENTS TO THE UNITED STATES IN OTHER FIELDS.

AT PRESENT WE HAVE REACHED SOME AGREEMENTS WITH THE RAILROADS AND THE MINES TN ORDER TO REDUCE THE DAMAGES SUFFERED BY US OWING TO CONGESTION AT THE U.S. PORTS BUT WE ARE STILL WORRIED ABOUT THE FUTURE. IN FACT, NOBODY SO FAR HAS ACKNOWLEDGED THE RIGHT OF LOADING PRIORITY TO LONG TERM AGREEMENTS WHICH, ON THE CONTRARY, WE CONTINUE TO INVOKE AS A FUNDAMENTAL RIGHT. NOBODY SO FAR HAS ACKNOWLEDGED THE RIGHT OF LOADING PRIORITY TO COKING COAL FOR WHICH THE GREAT COAL EXPORT PORT OF HAMPTON ROADS WAS CUSTOM-BUILT.

AS IT CAN BE EASILY UNDERSTOOD, THE RELATIONS EXISTING BETWEEN ITALSIDER AND OUR RAW MATERIALS SUPPLIERS (THEREFORE ALSO OUR COKING COAL SUPPLIERS) ARE NOT MERE COMMERCIAL RELATIONS BUT A STEADY AND LONG-LASTING INDUSTRIAL COOPERATION BETWEEN PRODUCERS AND CONSUMERS AIMED AT MINIMIZING COSTS IN ALL THE SEGMENTS OF THE PROCESS AND GUARANTEEING A STABLE EMPLOYMENT OF ALL WORKERS CONCERNED, THAT IS BOTH THE AMERICAN AND THE

ITALIAN ONES.

WE EXTEND OUR BEST WISHES THAT U.S. MINES WILL ENJOY A BIG DEVELOPMENT, BUT WE WISH ALSO THAT THIS HAPPENS WITHOUT SACRIFICING THOSE WHO LONG AGO CHOSE THE USE OF COAL AS A RAW MATERIAL. THE SAFEGUARDING OF THE COKING COAL STRUCTURES IS INDISPENSABLE TO HEAVY INDUSTRY.

MANY OF OUR CONTRACTS WERE RECENTLY EXTENDED UP TO 1990 AND THE FOLLOWING YEARS AND THEREFORE AN ORDERED AND STABLE MARKET IS NECESSARY. THE COAL MARKET CANNOT BE REGARDED AS A SHOP STORE WITH A QUEUE AWAITING AT THE ENTRANCE DOOR, AS HAPPENED OVER THE PAST 12 MONTHS.

IT CAN BE EXPECTED THAT, ACCORDING TO THE LONG TERM DEMAND, SUPPLIED UNDER LONG TERM AGREEMENTS, PRODUCTION WILL GRADUALLY DEVELOP THANKS TO PRIVATE DECISIONS AND INTERESTS BUT, IN OUR OPINION, THE PROMOTIONAL AND CONSTRUCTIVE PRESENCE OF PUBLIC AUTHORITIES IS ALSO NECESSARY.

FOR INSTANCE, IF WE CONSIDER THE PROBLEMS DEVELOPING FROM THE HANDLING OF LARGE STEAM COAL QUANTITIES, THE ROLE OF SMALL AND MEDIUM MINES MIGHT BE SACRIFICED AND THEREFORE PARTICULAR ATTENTION SHOULD BE PAID BY THE PUBLIC ADMINISTRATION IN ORDER TO AVO AVOID THEIR SUPPRESSION; THIS WOULD PROBABLY INVOLVE THE ADMINISTRATION IN THE CONTROL OF, OR IN THE BUILDING OF PARTICULAR INFRASTRUCTURES TO SECURE THE COHERENCE OF THE SYSTEM, INCLUDING MINES-RAILROAD-PORTS-VESSEL SIZE. WE CAN THINK OF COLLECTION CENTERS IN THE DIFFERENT AREAS , WHICH WULD ALSO ALLOW THE USE OF UNIT TRAINS TO THE PORTS.

AT THIS POINT IN TIME WE THINK THAT TO AVOID A DEADLOCK WHICH IS OF NO BENEFIT TO ANYBODY TWO PROPOSALS FROM OUR SIDE SHOULD BE GIVEN

YOUR CONSIDERATION:

1. AS ALREADY DONE BY THE U.S. GOVERNMENT IN THE PAST, WHEN IT PROMOTED THE NATHAN REPORT, IT WOULD BE ADVISABLE NOW TO CARRY OUT AN EXHAUSTIVE AND REALISTIC STUDY UNDER THE GUIDANCE OF A COMMITTEE OF COAL EXPERTS. POTENTIAL EXPORT MARKETS SHOULD BE INVESTIGATED, DETERMINING THEIR IMPORTANCE AND DEFINING THE ACTIONS TO BE TAKEN. A STUDY OF THIS KING COULD BE MANAGED FOR INSTANCE BY A COMMITTEE OF WHICH I VENTURE TO SUGGEST THE COMPOSITION AND, IN SOME CASES, THE NAMES OF THE EXPERTS, ALL OF THEM HAVING A VERY LONG AND DEEP EXPERIENCE IN THE COAL FIELD AND OVERSEAS EXPORT:

-MR. NICK CAMICIA - CHAIRMAN OF PITTSTON COMPANY
-MR. FRED HOLWAY - C.C.B. FORMER PRESIDENT AND FORMER PRESIDENT OF COAL EXPORTERS ASSOCIATION
-MR. FRANK LARAJA - SPRAGUE FORMER PRESIDENT
-MR. BILL MCBRIDE - DIRECTOR COAL EXPORT USS
-A REPRESENTATIVE OF THE COAL EXPORTS ASSOCIATION, FOR INSTANCE MR. MARC JOSEPH
-A REPRESENTATIVE OF THE COAL BITUMINOUS ASSOCIATION
-A REPRESENTATIVE OF UMWA
-A REPRESENTATIVE OF THE RAILROADS, FOR INSTANCE MR. FISHWICK - DIRECTOR N AND W.

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INFO AMEMBASSY ROME

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-A REPRESENTATIVE OF THE U.S. ADMINISTRATION
-A REPRESENTATIVE OF JAPANESE STEEL INDUSTRY (FOR INSTANCE FROM NIPPON STEEL)
-A JAPANESE STEAM COAL CONSUMER
-A REPRESENTATIVE OF THE FRENCH ATIC
-TWO EUROPEAN STEAM COAL CONSUMERS (FOR INSTANCE ONE DANISH AND ONE OF ENEL/ITALY)
-A REPRESENTATIVE OF THE EUROPEAN STEEL INDUSTRY (FOR INSTANCE FROM ITALSIDER)
-A REPRESENTATIVE OF THE CONSUMERS OF THE ASIATIC SOUTH EAST
-A SOUTH-AMERICAN CONSUMER (FOR INSTANCE A REPRESENTATIVE FROM SIDERBRAS/BRAZIL)
-A REPRESENTATIVE OF EUROPEAN COMMERCIAL COMPANIES (FOR INSTANCE ANKER/ROTTERDAM OR CLERICI/GENOA)
-A REPRESENTATIVE FROM THE EUROPEAN COAL STEEL COMMUNITY.

THIS STUDY COULD BE COMPLETED WITHIN SIX MONTHS AND BE THE BASIS FOR THE DECISION THAT WILL BE TAKEN FOR THE FUTURE.

2. IN THE MEANTIME, RELYING ON THE FACT THAT THE FUTURE STEAM COAL MARKET IS DUBIOUS WHILE THE COKING COAL MARKET IS MUCH MORE STABLE AND ENJOYS A SETTLED PATTERN OF TRADE

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AND IS EXPANDING IN THE SOUTH ATLANTIC BASIN, THE U.S. SHOULD TAKE AT ONCE TWO DECISIONS WHICH AT PRESENT DO NOT APPEAR TOO RISKY. WITH REGARD TO HAMPTON ROADS, THE U.S. GOVERNMENT SHOULD TAKE UPON ITSELF THE CHARGE OF DREDGING THE PORT FROM 45 TO 51 FEET, A DECISION WHICH, WITH A LOW EXPENSE, WOULD RESULT IN A REMARKABLE IMPROVEMENT IN THE FLEXIBILITY OF THE VESSELS EMPLOYABLE FOR THAT PORT. FURTHERMORE, IT WOULD BE ADVISABLE TO IMMEDIATELY START THE CONSTRUCTION OF AN ADDITIONAL COAL TERMINAL IN HAMPTON ROADS ABLE TO LOAD VESSELS OF UP TO 120,000/150,000 DWT DEVOTED TO STEAM COAL EXPORTS.

ON THE WHOLE IT WOULD BE AN EXPENSE IN THE RANGE OF THE UNDUE AND IMPRODUCTIVE BURDENS SHOULDERED BY ITALSIDER IN TWELVE MONTHS, AS PREVIOUSLY MENTIONED, CAUSED BY THE CONGESTION AT THE U.S. PORTS. THEREFORE THIS INVESTMENT WOULD NOT BE ENORMOUS FOR THE U.S. GOVERNMENT, BUT IT WOULD HAVE A DEEP POLITICAL SIGNIFICANCE AND, FURTHERMORE, WOULD BE FULLY REWARDING AND BENEFICIAL TO THE ECONOMIC GROWTH OF THE U.S. ECONOMY AS WELL FOR MANY DECADES TO COME.

IN THIS MOMENT COMPLETE INACTION WOULD BE REGARDED, ON THE CONTRARY,

AS A POSSIBLE EVIDENCE THAT THE U.S. DOES NOT INTEND TO CONTRIBUTE TO THE SOLUTION OF THE ENERGY CRISIS AND THEREFORE TO THE ECONOMIC REVIVAL OF THE ALLIED COUNTRIES AND THE CONSEQUENCES MIGHT BE VERY SERIOUS. MURPHY

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E.O. 12065: N/A
TAGS: ENRG, ETRD, IT
SUBJ: ITALSIDER'S PROTEST AGAINST PREFERENTIAL TREATMENT
TO U.S. FLAG VESSELS

REF: GENOA 0982

TO: JOHN W. WARNER
CHAIRMAN AND
ROGER SINDELAR
COUNSEL
SUBCOMMITTEE ON ENERGY AND MINERAL RESOURCES
U.S. SENATE
3104 DIRKSEN SENATE OFFICE BLDG.
WASHDC 20510

SUBJ: ITALSIDERS PROTEST AGAINST PREFERENTIAL TREATMENT
TO U.S. FLAG VESSELS

REF: GENOA 0982

ING. PIER LUIGI RENIER OF NUOVA ITALSIDER IN A FOLLOW-UP TO HIS TESTIMONY BEFORE SENATE SUBCOMMITTEE FOR ENERGY AND

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MINERAL RESOURCES HAS REQUESTED THAT THE FOLLOWING BE CONVEYED TO THE SUBCOMMITTEE:

FOLLOWING UP OUR WRITTEN SUBMISSION TO THE HEARINGS ON COAL ORGANIZED BY THE ENERGY AND MINERAL RESOURCES SUBCOMMITTEE OF THE SENATE ON NOVEMBER 10, 1981 IN WASHINGTON+ WE WOULD LIKE TO REVERT TO THE MATTER PREFERENTIAL TREATMENT TO U.S. FLAG VESSELS IN U.S. EXPORT COAL OCEAN TRANSPORTATION+ SINCE LATELY IT HAS BECOME THE SUBJECT OF WIDE DISCUSSIONS.

IN FACT, ITALSIDER HAS BEEN INFORMED THAT THE BILL H.R. 4627 HAS BEEN ADDED AS AN AMENDMENT TO THE BILL PROVIDING THE DREDGING OF U.S. MAJOR COAL PORTS AND THAT THIS AMENDMENT HAS ALREADY BEEN PASSED BY THE MERCHANT MARINE AND FISHERY SUBCOMMITTEE OF THE HOUSE OF REPRESENTATIVES.

THE BILL H.R. 4627 , NOW UNDER STUDY BY THE PUBLIC WORK AND TRANSPORTATION SUBCOMMITTEE, PROVIDES THAT 40% OF THE DRY BULK IMPORTS AND EXPORTS OF YOUR COUNTRY BE TRANSPORTED IN U.S. FLAG SHIPS WITHIN 10 YEARS, ENTERING INTO BILATERAL DRY BULK SHIPPING AGREEMENTS WITH U.S. TRADING PARTNERS.

IN THIS CONNECTION WE MUST ONCE AGAIN POINT OUT THE GRAVITY OF THE SITUATION WHICH WOULD BE CREATED IN THE WORLD IF THIS BILL SHOULD BE PASSED BY THE U.S. CONGRESS. AS A RESULT+ WORLD TRADE WOULD BE UPSET SINCE ALL PRODUCING COUNTRIES, INCLUDING DEVELOPING NATIONS WHICH - AS IT IS WELL-KNOWN - ARE NOT ORGANIZED FOR SUCH PROJECTS, WOULD LIKE TO PARTICIPATE IN DRY BULK TRANSPORTATION. FURTHERMORE, AS ALREADY POINTED OUT MANY TIMES ON PREVIOUS OCCASIONS, TRANSPORTATION COSTS ARE A SEGMENT OF THE COST STRUCTURE FOR WHICH THE RAW MATERIAL BUYER HAS SOLE RESPONSIBILITY. THEREFORE+ IN A FREE-MARKET ECONOMY, THE BUYER SHOULD BE

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GIVEN THE LIBERTY OF TAKING HIS DECISIONS IN ORDER TO MINIMIZE HIS OWN COSTS, INCLUDING TRANSPORTATION COSTS.

AS ONE OF THE MAJOR DRY BULK RAW MATERIAL IMPORTERS (25 MILLION TONS.YEAR) WE EXPRESS HEREBY OUR OPPOSITION TO THE BILL H.R. 4627 WHICH, IN OUR OPINION, WOULD HARM ALSO THE COMMERCIAL POSITION AND ROLE OF THE UNITED STATES IN THE WORLD. WE ARE AWARE THAT A COMMITTEE HAS BEEN CREATED IN WASHINGTON TO OPPOSE THE BILL.

WITH REGARD TO THE BILL FOR THE DREDGING OF U.S. COAL PORTS WHICH SHOULD ALSO STATE BY WHOM DREDGING COSTS SHOULD BE BORNE, WE CONFIRM HEREBY THE POSITION TAKEN BY US IN OUR WRITTEN SUBMISSION TO THE HEARINGS MENTIONED ABOVE. IN FACT, AS REGULAR AND LONG TERM CONSUMERS OF SUCH A RAW MATERIAL AS COKING COAL, WE ARE NOT WILLING TO ABSORB FURTHER COSTS IN ADDITION TO THOSE ALREADY SUSTAINED.

STATEMENT OF FRANCO REMONDINO U.S. REPRESENTATIVE FOR ENTE NAZIONALE PER L'ENERGIA ELETTRICA (ENEL) BEFORE THE U.S. SENATE SUBCOMMITTEE ON ENERGY AND NATURAL RESOURCES SENATOR JOHN WARNER-CHAIRMAN-NOV. 10, 1981

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2.0 Comments on proposed U.S. legislation

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3.0 Comments on the present U.S. coal export situation

STATEMENT OF FRANCO REMONDINO U.S. REPRESENTATIVE FOR ENTE NAZIONALE PER L'ENERGIA ELETTRICA (ENEL) BEFORE THE U.S. SENATE SUBCOMMITTEE ON ENERGY AND NATURAL RESOURCES SENATOR JOHN WARNER-CHAIRMAN-NOV. 10, 1981

Dear Mr. Chairman,

Thank you very much for giving me the opportunity of submitting a few comments on the U.S. coal export industry and some information on ENEL's current plans for steam coal procurement.

1.0 Ente Nazionale per L'Energia Elettrica (ENEL) is an Agency of the Government of Italy entrusted with power generation, transmission and distribution for the whole country. ENEL's structure is very similar to the organization of the Tennessee Valley Authority in the U.S.A. with the added responsibility in power distribution and retail electricity sales.

In 1980 ENEL's gross installed capacity was about 37,800 MW and the power generated during the same year about 146.9 TWh. These figures compare with 12,900 MW installed and 47.7 TWh generated in 1963 when ENEL began to operate as an Agency of Government according to the mandate of the law approved by the Italian Congress in 1962. Such law nationalized the privately owned electric utilities allowing only a few municipalities and self-producers (mainly heavy industries like the steel and aluminum smelters) to continue their independent operation. In 1980 these companies accounted for about 10,700 MW of additional gross installed capacity with a generation of 38.8 TWh bringing the total figures for the country to 48,500 MW and 185.7 TWh respectively.

Since its establishment ENEL has relied mainly on hydro and fossil generated power. However while the overall generation has increased about 3 times between 1963 and 1980, the fossil share of the power generation has increased about eightfold from 13.3 TWh (27% of total) in 1963 to 106.9 TWh (73% of total) in 1980. One of the main reasons for this substantial increase in fossil generation has been the completion of the exploitation of the hydro resources. Most of the fossil generation during these years came from fuel-oil while coal consumption accounted for a very small fraction of total power generation. It should be noted that Italy has no oil and only very limited domestic resources of a low quality lignite.

During the 70's, the marked increase of world oil prices, brought about a change in planning for future power generation. It was decided to convert to coal some of the plants running on oil but originally designed for both fuels and to build the future expansion of the generating capacity on coal and nuclear. The implementation of this policy is already under way but its results will become quite outstanding by the end of the decade. The forecast of minimum growth for electricity demand calls for an average yearly increase of about 5% in power generation from 1980 to 1992. To meet the policy goals of switching to coal and nuclear will imply a substantial change in the energy sources mix by 1992 as reported in the following table:

ENEL fuel consumption in 1980 (actual) and 1992 (forecast)

	1980		1992	
	MTOE	% of total	MTOE	% of total
Oil	18.7	57.9%	13.0	20.1%
Coal	2.9	9.0	27.1	42.0
Lignite	0.5	1.5	0.3	0.5
Gas	1.4	4.3	1.4	2.2
Hydro	7.7	23.9	8.0	12.3
Geothermal	0.6	1.9	0.9	1.4
Nuclear	0.5	1.5	12.9	21.5
Total	32.3	100%	64.6	100%

Coal consumption has grown from about 1 million metric tons (Mmt) in 1976 to about 5 Mmt in 1980 while projected consumption in 1981 will be about 6 Mmt. The conversion to coal of the above mentioned oil units will be bringing the yearly coal consumption to a plateau of about 10 Mmt in the next few years. Coal-oil mixture (COM) ill also have a role in the future fuels mix and will require an additional use of coal. However the implementation of plans to fire COM in some of the older, oil designed boilers is still under consideration and it is too early to assess its impact on future coal consumption. The commissioning of future coal stations, late in the 80's, will step up coal consumption to sizeably larger yearly quantities. As shown in the above table, ENEL's coal consumption should be around 40 Mmt/year by 1992.

Historically, Poland has been supplying coal to ENEL since the early 60's and South Africa entered in a medium term contract with ENEL in 1976. Both countries covered the bulk of ENEL's coal needs up to the end of 1979 when it became possible to implement the long standing management policy of maximum diversification among the potential foreign suppliers. In 1979 the coal import constraints due to the Polish events and to the export facilities saturation in South Africa brought about the possibility of supplying the balance of ENEL's coal needs for 1980 from the U.S.A. despite the fact that the U.S. were at that time, and still are, the higher cost supplier. The share of coal coming to ENEL from the U.S.A. has increased from 1 Mmt in 1980 to about 2.7 Mmt in 1981 while projections for 1982 are well above 3 Mmt. U.S. coal is expected to cover a major share of ENEL's coal imports in the coming years after 1982 even in the event of a "normalization" of the Polish coal production and of a gradual increase in the South African coal export quotas presently enacted by the South African Authorities. Under appropriate circumstances even the Australian, Columbian and

West Canadian coals will play, a few years from now, a certain role as potential steam coal suppliers to ENEL.

1.2 The criteria applied by ENEL management for selecting its foreign suppliers focus on several considerations of general and specific nature. The first requirement is certainly the quality of the coal that should comply with ENEL's specifications. Attention is then given to the reliability of the supplier. This involves a general evaluation of the political stability and business environment in the supplying country, the possible implications of unusual events such as strikes at the production level or in the coal hauling infrastructures and the likelyhood of timely delivery to the chartered vessels at port. A close scrutiny of the supplying company is carried on with specific consideration given to its past performance as a producer and as an exporter, its coal properties, its labor situation and relationship and its financial rating. The same approach is applied to the coal hauling and handling infrastructures in order to assess the combined probability of delays in the delivery to port and in the vessel loading. Where the results of this evaluation come out not as favorable as expected, other possible routes and ways of transportation through different ports are explored. This process, combined with the underlying management principle of the diversification of suppliers, made it possible to obtain part of ENEL coal supplies from the Gulf Coast (Mobile and New Orleans) at the time of the grave port congestion experienced on the Atlantic Ports in 1980 and 1981.

Going back to the evaluation of the individual supplying companies, it is worthwhile to underscore another important management criterion which allows ENEL to deal only with producing companies excluding whenever possible coal brokers, traders and the like. The contractual relationship is based on the adequate performance of a few trial cargo (on a spot basis) and it evolves to a preliminary contractual arrangement for the duration of a year followed by a "medium" term contract, normally 3 years. This contractual policy reflects the need of ENEL to rely on a spotless performance for an extended period of time. It also takes into account the fact that the step up in coal use from the 10 Mmt plateau to the much larger quantities needed by the commissioning of the new coal station, has not been adequately pinpointed in time. The result of this "time" uncertainty makes it advisable to wait until the new stations construction program is under way before contracting on a larger quantities and longer contractual terms. Cost consciousness is present at all times during the suppliers evaluation but the delivered price assessment is really entered last and it is the final governing consideration to wrap-up a contractual agreement or not.

1.3 The National Energy Plan (Piano energetico nazionale-PEN) of 1981 calls for the construction of about 16,600 MW of coal generated capacity by the end of the decade and will bring about as previously mentioned a marked increase in coal consumption. Steam coal consumption for industrial users will also increase. This will require major modifications in the coal infrastructures in Italy in the very likely event of having some of the new stations located on inland sites as opposed to the present common practice of seaside sites. The Italian Government through its Departments and Agencies will have to commit a substantial allocation of funds for capital investment in such infrastructures and ENEL might be called upon to share part of this funding. Several implementation plans for coal infrastructures are being evaluated, however the variability of factors affecting the potential "scenarios" in the late 80's is still so wide that it is impossible at this stage to come out with any meaningful forecast. Suffice to say that while the same future inland sites are clearly identified but not approved yet by the authorities, their coal hauling routes will be affected by the selection of the harbors or coal terminals be be developed or increased on the Italian coasts. The interaction among these choices will be a substantial factor in the configuration of the coal infrastructures as called on by the PEN which will have to be implemented on an integrated basis still undetermined at the present stage.

As mentioned, all coal fired stations are presently located on the Italian coastline and it is expected that the majority of future coal sites will be also located on the seaside. The main features of the present coal fired station are reported in the following table:

Station name	Capacity (MW)		Draft
	On coal	Total	
Vado	660	(4x320)	41'
Monfalcone	330	(2x165)	23'
La Spezia	900	(2x320) (2x640)	43'
Genova	295	(1x155) (2x70)	31'
Porto Vesme	240	(2x240)	28'
Porto Marghera	140	(2x70)	29'
Fusine	960	(2x320) (2x160)	32'
Total	3525	5405	

The substantial variation in drafts is presently being accomodated by direct unloading of the ocean going vessels where the drafts are deep enough and by a small fleet of large barges where shallow drafts do not allow the access of the larger ships. The overall "distribution" scheme presently implemented calls for a few strategically located terminals where the coal, unloaded from the larger vessels, is subsequently transferred to the barges for delivery to the shallow draft stations. Plans for coal transhipment at mooring are presently under way using a unique transloading device that will eventually optimize the entire coal distribution process. As a minimum, the National Energy Plan calls for 3 major terminals two on the West Coast of Italy (possibly at Vado on the Northern West Coast and at Gioia Tauro on the Southern West Coast) and one on the East Coast (possibly at Trieste). These terminals will be serving ENEL, as probably the main steam coal customer, and many additional coal users.

1.4 The Italian law mandates that no coal with a sulphur content above 1% can be burned in power generating stations. This requirement is well established and there is no possibility of relaxation of this rule in the foreseeable future. The first implication of the law is the impossibility of burning, as mined, the only domestically available coal of the Sulcis fields in the Sardinia region. In addition to the low heat content, the Sulcis coal has an high ash content and well above 4% of sulphur. The recoverable reserves are estimated to be large enough to warrant the implementation of proposed plans to convert this coal into an environmentally acceptable fuel. The most likely conversion scheme is a coal gasification plant with final production of methanol as proposed by ENI* and actively supported by ENEL.

The second implication of the 1% sulphur contnt limit involves the possibility of avoiding the use of flue gas desulphurizers (scrubbers) in ENEL coal burning stations since the law mandates, for all practical purposes, the use of premium coals with the least possible impact on the environment.

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*ENI-Ente Nazionale Idrocarburi-is the Government agency involved in fuel exploration, production and procurement

The general specifications of the coal used by ENEL call for a BTU content of 12,000 BTU/lb or higher and, as mentioned, a sulphur content of 1% or lower. Premium-penalty clauses are normally included in the specifications. Rejection clauses may be also present on sulphur content and, at times, on grindability hardgrove index.

It should be noticed that occasionally, under special situations and operating conditions, it could be possible to accept limited quantities of coal with a sulphur content slightly above 1%. Studies are under consideration to assess the economic impact of blending such quantities with appropriate quantities of South African coal with a sulphur content well below 1%. However this blending will require additional handling costs and it should be regarded for all practical purposes as an exceptional contingency event.

2.0 Turning now to the specific U.S. coal export industry situation and in view of the commitment to a growing use of coal, as outlined before, ENEL would like to submit some comments on a few subjects that are perceived as potentially important for an orderly and reliable development of the American export market to Italy in general and, namely, to ENEL itself.

The outcome of the Venice Summit of 1980 pointed out to a common will among the participating nations to lessen their dependence upon foreign oil. One important pledge by the U.S. Government was to accomodate, within reasonable limits, the desire of the other countries who saw an improved role of coal as a worldwide energy source able to a least partially overcome their dependence on oil. It is hoped that this willingness of the U.S. to take into consideration the foreign point of view on issues like these will continue in the true spirit of the Venice Summit. Italy and ENEL on their part are making every possible effort to enact an energy program thoroughly consistent with the general objectives and goals outlined at the Venice Summit.

Four different proposed pieces of legislation affecting the U.S. coal export capabilities are now under consideration by the U.S. legislation at various stages of their procedural iter. The outcome of this legislation is perceived as potentially important to ENEL as a foreign buyer of U.S. coal. These proposals are the Staggers rail act on railroad deregulation, the proposed legislation on the priority of "local" traffic over international traffic at U.S. ports, the Bonker amendment to the Biaggi's Port Development and Navigation Improvement Act of 1981 and the Abdnor-Moynihan Port dredging bill.

2.1 The railroads deregulation as proposed by the Staggers Rail Act will not enhance ENEL's attitude to buy U.S. coal because it would add an element of uncertainty about the final price of coal at port. The freedom of setting freight rates without Federal Control will in all probability, put the Railroad Companies in a position to try to maximize their profits without many constraints. This objective will not necessarily be consistent with ENEL's need to be able to acquire coal at a reasonable price in a timely fashion from a reliable supplier. Moreover it would destroy to a certain extent ENEL's ability to implement the planning of its financial resouces therefore jeopardizing the final objective of contracting for a reliable long term supply of coal from the United States. On the same basis, it is ENEL's belief that such added uncertainty will also have a negative impact on most capital investments that U.S. coal exporters may wish to commit for the improvement of the coal infrastructures.

The "maximum rate" provision, presently in force, is to be wiped out by the proposed deregulation: if so, the monopolistic practices of the railroad companies will be free to set up any rate structure consistent with their perception of the market. The "maximum rate" provision guarantees, instead, by itself, a foreign coal buyer of a "normal" rate increase on the basis of inflation and of proven economic necessity and not on the basis of the railroads will. The argument in favor of deregulation will carry with it the familiar tune of lower rates due to increased competition and better efficiency weeding out the inefficient, poorly managed companies. ENEL is not in agreement with the merits of this argument, as applied to the railroads, because, contrary, for instance, to the Airlines situation, the competition among the railroads on certain routes, namely the coal routes, is not proven and is yet to be demonstrated. Coal transport can be regarded as a "service" type of activity which by nature should be Government regulated or controlled.

One final comment on this subject: ENEL's involvment in U.S. coal purchasing would entail, in the case of deregulation, a fairly large exchange of information and details with the railroad companies. The relationship would be, by necessity, at the operating level encompassing what ENEL feels as a difficult coordination task of several different activities. This would come when most of the available resources, mainly management and manpower, are being dedicated to strongly increase the size of ENEL coal import from the U.S.A. It will therefore divert part of such resources to a difficult. new type of activity and increase the chances of costly extended discussions with another contractual partner, namely the railroads.

Still on the subject of competition, it is important for ENEL to understand the U.S. position on the legal constraints hampering the development of the proposed coal slurry pipeline projects to move eastern steam coal from the mining areas to the Atlantic Ports. It appears that the slurry pipeline, according to the proponents, will be both technically feasible and economically sound. If so, such slurry pipeline projects seem to be in a position to represent the only potential competition with the railroads in the eastern U.S. If and when available, they would therefore allow a welcome possibility of choice between coal carriers that will be even more appreciated by the foreign buyers of U.S. steam coal if the railroads were to be deregulated. This leads to the conclusion that a railroads deregulation, if approved, should also encompass the necessary provisions to enable the coal slurry pipelines to compete on equal ground with the railroads for the transportation of coal.

2.2 The effects of the proposed legislation to grant priority to the U.S. domestic bound traffic over the international traffic from the American ports will also be detrimental to the orderly development of the U.S. coal export market. This issue is presently of lesser concern than other issues because the size of the domestic shipments of coal from the Atlantic ports is at the moment so small in comparison with the size of the overseas shipments that it is not perceived as really affecting the loading delays of the international coal traffic.

The potential effects of this regulation are not be be undervalued if the local domestic waterborne traffic picks up consistently over the next few years. Coastal based utilities all along the Atlantic coast, but particularly in New England and New York will benefit considerably from the economics of water transportation of coal when their own conversion programs from oil to coal are carried out. Already a study from the U.S. Department of Transportation by the title "Implications of Power Plant Conversions on the Ports of New England", shows that most of the power plants in that area have actual infrastructures or provisions for an easy upgrade of their unloading facilities for waterborne coal.

Even the likely necessity of transhipment in Boston or Providence from ships to barges for local power plant distribution will result, according to the DOT study, in delivered prices sensibly lower than the overall rail cart from the Applachian coal fields to the New England stations. Since the waterborne alternative for New England and New York would entail the use of the coal loading facilities of Baltimore and Hampton Roads, it is reasonable to assume that this traffic will be competing with the overseas traffic for a spot in the line at the loading piers.

The "priority" regulation will therefore introduce another element of delay in loading the export coal which might increase the demurrage charges for a foreign buyer. The likelyhood of this scenario becoming a reality before long is very high if, according to the conclusions of the DOT study, "waterborne coal transportation can be expected to reemerge as the dominant transport mode for supplying the coal needs of the New England region". In view of this it is hoped that such "priority" provision, discriminating in nature against the foreign coal customers, will not be approved or enforced in the interest of fairness ~~to~~ for the U.S. coal export industry.

2.3 The same line of thinking applies to ENEL's comments to the protectionistic approach entailed in the proposed

Bonker amendment to the "Port Development and Navigation Improvement Act of 1981" introduced by Rep. Mario Biaggi in 1981. According to the press reports on the subject, the U.S. Department of Transportation will be required to negotiate agreements with the major foreign coal importers to stipulate that, by 1991, 40% of coal cargoes be shipped in U.S. vessels, 40% in the foreign buyer flag vessels with remaining 20% left on the open market.

While the general U.S. press comments appear to be pessimistic about the possibility of support for the amendment in the Administration and the Legislative bodies, it should be noted that passage of such amendment will again add another difficult set of problems for a large foreign buyer as ENEL. The shipping cost implications are perceived as quite important and negative adding, according to the U.S. shipping specialists, a sensible amount to the shipping charges if coal is to be moved in 50,000 DWT vessels or larger. This increase would result from a variety of factors including higher coast of ship building and maintenance charges in the U.S., higher wages for U.S. crews and higher ship insurance premiums.

While sharing these views, it is ENEL's opinion that the worst consequences of the amendment will be felt in arranging and coordinating the planning and the logistics with several shippers of different background and nationalities and subject to different rules and regulations. As already pointed out on page 10, this will probably require additional management and manpower resources on ENEL's side. Another drawback would be the potential currency complications involved in paying shippers of different nationalities as compared with the present situation where most of the shipping charges are paid in only one currency. Although difficult to assess at the moment, such consequences could be very serious affectively hampering the perceived degree of reliability of the overall coal supply from the U.S.

2.4 ENEL' standing on the Abdnor-Moynihan port dredging bill is still under consideration. While sharing the general view that a deepening of the major Atlantic Ports could benefit the coal export industry and eventually decrease the cost of shipping on large 100-150,000 DWT vessels, it is felt that the bill provisions related to the users fees and to the customers charges, deriving from the 25% private funding now envisioned, will add to the cost of shipping on every vessel, even the small ones, sailing to and from the U.S. ports. The smaller vessels already able to use the U.S. Atlantic Ports will therefore be paying part of the cost of allowing the larger vessel in.

Should this happen the incentive for a large coal importer would be on using the larger vessels but at first sight it does not look like the economics of the larger sizes on the relatively "short" sailing trip from the U.S. Atlantic coast to Italy would show a very significant advantage in the deployment of these larger ships. Another factor that might adversedly affect the deployment of the larger vessel is the foreseeable increase in the coal distribution costs in Italy. It is felt that coal distribution logistics and operation in Italy would be the major consideration affecting the decision on the use of the large size vessels.

3.0 Finally a few specific comments on the overall coal export situation in its present conditions may be of some interest. In the long chain of events entailed by moving coal from the U.S. mines to the power stations in Europe, none drew more attention in the last 18 months than the East Coast portscongestion. Its sheer size overshadowed by far the remaining "smaller" problems related to coal export. One such problem area was the rail transport of coal to port with its not so simple system of car allocation, scheduling and availability. This, it is felt, is still the real bottleneck of the whole chain and it is entirely in the hands of the Railroad Companies, which have the power and the legal authority to control it according to their own best judgement. Effective steps are being taken by the Railroads to solve the problem and some encouraging results have been acheived so that the overall Atlantic ports congestion situation looks now sensibly improved.

As stated in the Interagency Coal Export Task Force draft report of January 1981, "The principal problem underlying the port backlogs of 1980 was that existing facilities and methods for moving coal to the ports, designed for metallurgical coal, were overtaxed by the surge of demand directed toward the United States. They were unable to deal separately with increased demand for steam coal. Metallurgical coal is a highly specialized product with as many as 500 blended sales grades; the component coals are stored in the same hoppers used to transport them. Given an absence of adequate ground storage for steam coal at the ports, shippers were simply unable to maintain or move the volumes necessary to fill orders and load ships. Waiting ships were not accepted for loading until all the coal ordered was on hand. Even if the necessary coal had been available at the port loading areas, then another bottleneck would have developed, because the capacity of piers and loading equipment was also inadequate".

As far as ENEL is concerned, it appears that the Atlantic ports should be improving their coal handling facilities before thinking of deeper drafts accesses.

As mentioned before, dredging still is one of the main responsibilities of the U.S. Government while improving the coal handling facilities is entirely in the hands of the port operators. In a way these improvements seem to be a much easier task than dredging.

Another consequence of the intended metallurgical coal handling design of the Atlantic ports is the coal sampling system currently used at the loading piers. The present rail cars "top sampling method" may be judged quite adequate for a correct representation of the entire car load of a washed, high quality metallurgical coal. In the case of steam coal, generally unwashed and of lesser uniformity and quality, the top of the car sampling system seems to be grossly inadequate for a reliable representation. Automatic samplers on the vessel loading conveyors are widely used in the recently designed coal loading facilities because of the improved degree of confidence in their ability to correctly represent the overall quality of the steam coal being loaded.

In addition to the well known demurrage costs of 1980-81 and to the above inconveniences that can be related to the entire export coal hauling system, there are also a few additional problems related to the individual supplying companies. Without entering into many details, most of the problems experienced by ENEL were related to either the compliance to the coal specifications or the contract performance of some suppliers affecting, on the whole, the degree of confidence that a large foreign buyer as ENEL has to have in its foreign supplying companies.

Despite the above comments and considerations which should be interpreted as an attempt to describe in a constructive way some of the problems affecting the U.S. coal export industry, the most important impression remains that the U.S.A. are a highly stable and reliable business partner for Italy and ENEL. The U.S. will not probably be the lowest price coal supplier among the coal exporting Nations. Even so, its export capabilities should be enhanced making sure that both the U.S. Government and the Industry will do every possible step to maintain the overall quality and reliability of supply to foreign customers increasing at the same time the cost affectiveness of the U.S. coal in the international marketplace.

Sincerely,

Franco Remondino

Franco Remondino
ENEL Representative
in the United States

THE JOURNAL OF COMMERCE, Friday, October 2, 1981

Task Force to Probe New Orleans Hot Coal

By BILL MONGELLUZZO
Journal of Commerce Staff

NEW ORLEANS — Representatives of the coal industry, barge companies and the Coast Guard have formed a committee to investigate problems of overheated coal exported from New Orleans.

Capt. Richard J. Clements, Coast Guard captain of the port, said 11 vessels have encountered problems since March with overheated coal. Temperatures in the cargo reached or exceeded the danger level established by the Intergovernmental Maritime Consultative Organization — 131 degrees Fahrenheit.

In September, four vessels that left New Orleans bound for the Far East were forced to change their course and pull into Long Beach. One of the vessels unloaded its coal cargo there, while the others are being worked on in the harbor in an attempt to avoid discharging the coal.

Mr. Clements stressed that he does not consider the problem to be severe enough to warrant a Coast Guard order to change established trade patterns. He said the Coast Guard has advised ship captains to notify the captain of the port when coal temperatures meet or exceed the IMCO guidelines of 131 degrees, but added that the captains have been voluntarily doing so even without the recommendation.

Mr. Clements said he feels the industry will be able to resolve the problem itself without government orders being necessary.

A special meeting was held Wednesday afternoon in New Orleans at the end of a National Coal Association seminar. The meeting was attended by coal producers, barge company operators, port officials and the Coast Guard.

Those present set up a committee to find an answer to the most important question still unresolved: What is causing the overheating? The committee will be chaired by Connie Holmes, NCA vice president, and will have a number of members with technical expertise, Mr. Clements said. The committee will hold its first meeting Monday in New Orleans.

Officials in New Orleans admitted they are at a loss to explain why the coal is overheating, and why the problem seems to be centered in New Orleans. They noted that hot coal is really not a new problem, for records going back 100 years indicate the problem has occurred at mines and utilities. However, it has only been recently that the hot coal problem has appeared on vessels.

The committee will attempt to determine where the coal originated, how it was transported to New Orleans, who loaded it onto vessels, and what type of coal is involved.

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Ms. Holmes said the committee will be looking for a "common thread" running through the incidents of overheated coal. Until that common thread is discovered, it is not appropriate to generalize that barged coal is the culprit, or that the coal was high in sulphur, or any of the other speculative reasons that have been advanced so far, she added.

Mr. Clements added that once the problem is discovered, a solution should be forthcoming soon thereafter. Industry officials have been dealing with problems of overheated coal for years at mines and power plants, so preventative measures are well known. The main duty of the task force will be to determine the best method to use in treating hot coal aboard vessels, he said.

Mr. Clements said four of the 11 vessels encountering problems with overheated coal were forced to divert their course to the West Coast. They are the Kartini, Baltic Neptune, Global Maritime and Warschau. The other seven were taken care of in New Orleans, often by discharging some or all of the cargo, he said.

Exports of coal have risen dramatically at New Orleans, from about 3 million tons last year to more than 6 million tons during the first six months of 1981. Projections for the year are 12 million tons of coal.

Blazes Strike Four Vessels at Same Time

Stubborn Ship Fires Linked to Low-Grade Coal

By REBECCA TROUNSON and ANNE LaRIVIERE, *Times Staff Writers*

Since early September, coal experts from around the world have been struggling at Long Beach and Los Angeles harbors to cool down 189,000 tons of smoldering and burning coal inside the holds of four cargo ships.

The experts—including a daredevil Texas firefighting team and geologists from the U.S., England, Japan and Germany—have covered the coal with dry ice, shot it full of chemicals and flattened it with bulldozers.

Working around the clock in scorching temperatures in the holds, they have removed thousands of tons of coal from two of the ships and piled it on docks at Los Angeles Harbor and along a seaplane runway at Terminal Island.

Coal fires in ships are not a new phenomenon, the experts say. But all persons interviewed agree that the rash of recent incidents in Los Angeles is unprecedented.

"We are trying to see that this doesn't turn into an epidemic," said Capt. Keith Schumacher, head of the U.S. Coast Guard's cargo and hazardous materials division in Washington, D.C. The Coast Guard, which regulates safety in U.S. ports, does not consider coal a hazardous cargo and has no special regulations on its handling.

Most industry and port officials link the fires to an increase in the amount of low-grade, highly volatile coal being loaded at the port of New Orleans—where all four ships received their cargo—and a failure by the coal transportation industry to handle the coal properly.

"I can never recall an incident where there have been four ships on fire and in danger of sinking at the same time anywhere in the world," said James McJunkin, executive director of the Port of Long Beach, where three of the ships are docked. The fourth is in Los Angeles Harbor.

Studies Under Way

The incidents have resulted in an intensive self-examination by the industry, including the formation of a nationwide committee made up of representatives of every group associated with the export of coal. Its members range from coal producers to barge operators, the U.S. Coast Guard and the U.S. Bureau of Mines.

The committee is scheduled to meet for the first time Monday in Pittsburgh to discuss better ways of handling the coal, specifically the low-grade steam coal that comes from such major coal-producing states as Pennsylvania, Illinois and Ohio.

A mining expert called in as a consultant by the owner of one of the four ships said many factors could have caused the coal to ignite: its water, sulfur and ash content; the size of the coal particles; the fact that it was piled high in the holds, creating a chimney effect, and the layering or mixing of low- and high-grade coals.

But industry spokesmen caution that no one yet knows why steam coal is so much more volatile than the higher grade metallurgical coal that makes up most of U.S. coal exports.

"We can't say why this problem exists. That's why this committee of experts was formed—to answer those very questions," said the engineer, who asked not to be identified because he expects a large number of lawsuits to result from the fires.

Since 1979, when oil prices doubled, the less-pure coal has become increasingly attractive to overseas buyers and more economically feasible to mine in the United States, according to the Washington D.C.-based National Coal Assn., an industry organization.

The high sulfur content of steam coal makes it illegal for use in most of the United States.

U.S. exports of steam coal—used primarily in the generation of electricity—have climbed dramatically since 1979, from 2 million metric tons in 1979 to a projected 30 million metric tons in 1981, the association's Jim Beckham said.

Although it is expected to make up only about one-third of total U.S. coal exports in 1981, the proportion of steam coal exported in the coming decade is expected to rise with the increasing demand for cheap fuel overseas.

"Ship captains were used to picking up coal in the U.S. that was relatively benign and we knew how to ship it," said Capt. Schumacher. "These new coals, though, are prone to have more problems."

On Sept. 6 the first ship, the Indonesian freighter Kartini, called at the Long Beach port for fuel on its way to Taiwan.

Smoldering Coal

Three days later, the Kartini was back in port with 55,000 tons of steam coal smoldering in the holds—wisps of smoke curling from its closed hatches.

Stevedore crews—faced for the first time with the task of dousing mountains of hot coal aboard a ship—pumped water spray and liquid nitrogen into the holds in an effort to cool the cargo.

When those efforts failed, the Kartini's owners decided to unload the vessel.

But as heavy equipment bit into the smoldering mass, the increased exposure of the coal to oxygen caused it to erupt in flames. The crews worked more than three

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COAL: Ship Fires Tied to Low-Grade Fuel

Continued from ~~First Page~~ 9

weeks with members of the Los Angeles Fire Department before they succeeded in reducing the coal temperatures to safe levels —about 130 degrees Fahrenheit —a Coast Guard spokesman said.

Preliminary estimates of the cost of unloading the Kartini's coal are $2.5 million, said Charles Cappell, attorney for Karana Line of Indonesia, owners of the ship.

Overall costs of the fire will also include the cargo loss and structural damage caused by the fire and by a corrosive acid formed under the coal when the sulfur in it combined with the water, Cappell said. Legal action to recover the damages is being considered, the attorney said.

While port officials were in the midst of unloading the Kartini, a second ship, the Liberian-registered Baltic Neptune, also bound for Taiwan, pulled into port with 55,000 tons of smoldering coal in its holds.

"We tried to avoid the expense that the Kartini had," said Don Wooden, agent for the ship owners, the Monitor Steamship Agency.

Monitor Steamship hired Boots and Coots, Inc. of Houston, Tex., oil well fire fighters and oil blowout specialists.

Boots Hansen and Coots Matthews founded their firm three years ago after leaving the company owned by the renowned oil well firefighter Red Adair, now their major competitor.

Boots and Coots employees spent two weeks injecting a wetting agent into the steamy piles of coal that rose to 40 feet inside the holds.

And they packed down the coal to squeeze out the oxygen and reduce the chances of spontaneous combustion.

"The surfaces of the coal piles were so hot down there that one guy told us it would kill us," said Dwight Williams, a Boots and Coots lead man on the job.

"People were concerned because (what we did) had never been done before. It was dangerous, but it was a new thing to us and we sure enjoyed it."

According to Williams and agent Wooden, temperatures on the Baltic Neptune have stabilized and the ship will leave port as soon as it receives permission from the Coast Guard.

The two other ships that are docked here with the same problem are the Warshau in San Pedro and the Global Maritime in Long Beach.

Fifty-one thousand tons of coal from the Warshau now lie along a seaplane runway at Terminal Island where it was spread to be cooled.

The 28,000 tons of coal aboard the Global Maritime remain on board after bulldozers were lowered into the holds to level the coal and hand-held tamping machines were used to compact it in a successful effort to control the temperatures.

The Global Maritime may depart for its destination in Japan as early as today.

The Coast Guard has tried to increase awareness of the problem by calling the attention of the coal industry to establish international standards for the safe shipping of coal.

The Port of New Orleans also is stepping up efforts to make ports throughout the world aware of the dangerous cargo that could be arriving there.

Since March, eleven ships including the four that made it to Los Angeles were loaded in New Orleans with coal that become hot, said the port safety officer of the New Orleans port.

One on its way to Europe put in at Norfolk, Va., where its coal was unloaded. The problem was detected on the other six before they left port.

Coast Guard Lt. Commander Gary Thornton, a port safety officer in New Orleans, said recently that coal from 14 of 21 barges was not allowed to be loaded when it was also discovered to be smoldering.

"We have had a sudden surge of this problem and we are addressing it head-on," he said, although he admitted that the primary measure taken so far has been to increase awareness of the problem.

"The amount of knowledge in this port community about the problem of overheating coal is tremendous, compared to two or three months ago when it was almost unheard of," he said.

Thornton and others said New Orleans port officials were trying to locate the origins of the coal and pinpoint the reasons for its heating.

But he added that the port was continuing its shipments of steam coal.

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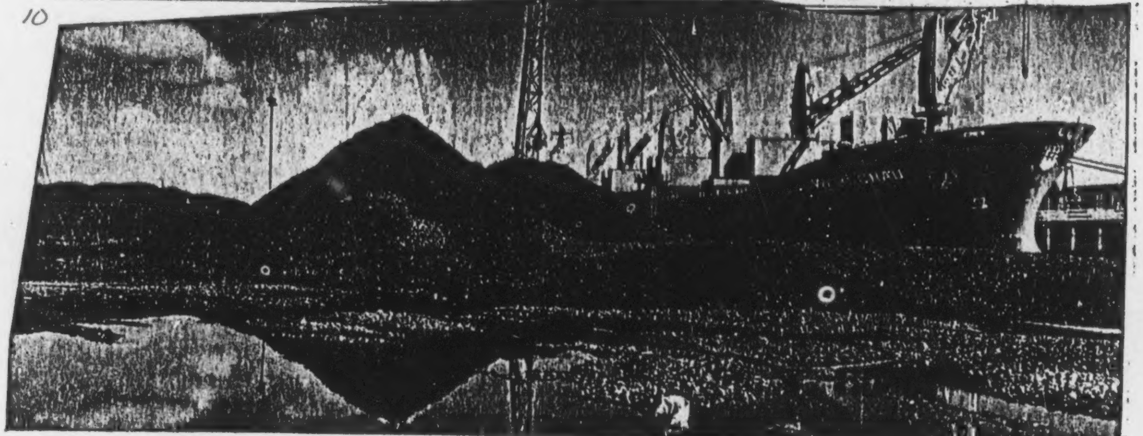
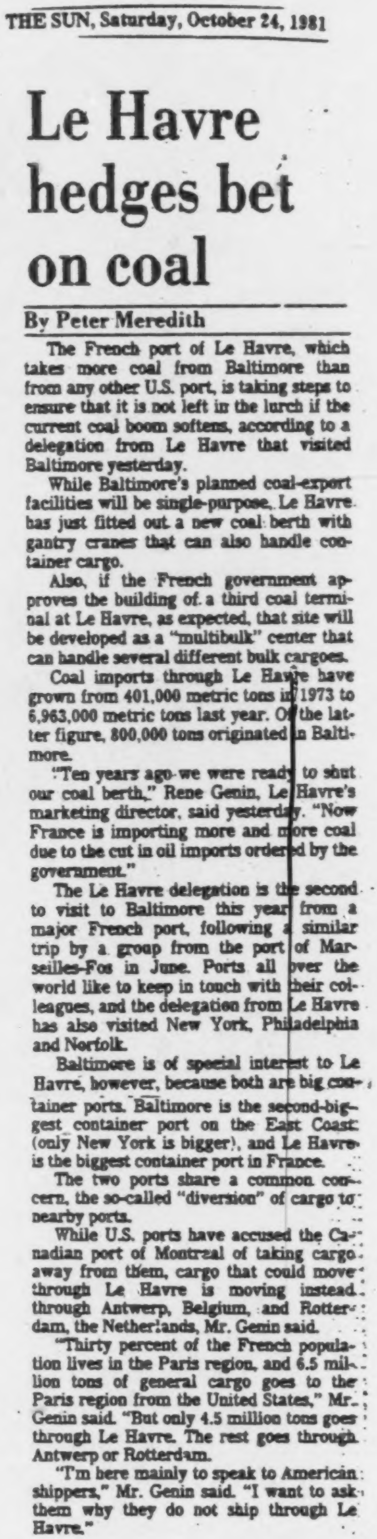


RICK CORRALES / Los Angeles Times

[illegible] temperatures, lay beside the carrier Warschau in Los Angeles Harbor. Coal fires are not new, but four at once cause concern.



THE SUN, Saturday, October 24, 1981

Le Havre hedges bet on coal

By Peter Meredith

The French port of Le Havre, which takes more coal from Baltimore than from any other U.S. port, is taking steps to ensure that it is not left in the lurch if the current coal boom softens, according to a delegation from Le Havre that visited Baltimore yesterday.

While Baltimore's planned coal-export facilities will be single-purpose, Le Havre has just fitted out a new coal berth with gantry cranes that can also handle container cargo.

Also, if the French government approves the building of a third coal terminal at Le Havre, as expected, that site will be developed as a "multibulk" center that can handle several different bulk cargoes.

Coal imports through Le Havre have grown from 401,000 metric tons in 1973 to 6,963,000 metric tons last year. Of the latter figure, 800,000 tons originated in Baltimore.

"Ten years ago we were ready to shut our coal berth," Rene Genin, Le Havre's marketing director, said yesterday. "Now France is importing more and more coal due to the cut in oil imports ordered by the government."

The Le Havre delegation is the second to visit to Baltimore this year from a major French port, following a similar trip by a group from the port of Marseilles-Fos in June. Ports all over the world like to keep in touch with their colleagues, and the delegation from Le Havre has also visited New York, Philadelphia and Norfolk.

Baltimore is of special interest to Le Havre, however, because both are big container ports. Baltimore is the second-biggest container port on the East Coast (only New York is bigger), and Le Havre is the biggest container port in France.

The two ports share a common concern, the so-called "diversion" of cargo to nearby ports.

While U.S. ports have accused the Canadian port of Montreal of taking cargo away from them, cargo that could move through Le Havre is moving instead through Antwerp, Belgium, and Rotterdam, the Netherlands, Mr. Genin said.

"Thirty percent of the French population lives in the Paris region, and 6.5 million tons of general cargo goes to the Paris region from the United States," Mr. Genin said. "But only 4.5 million tons goes through Le Havre. The rest goes through Antwerp or Rotterdam.

"I'm here mainly to speak to American shippers," Mr. Genin said. "I want to ask them why they do not ship through Le Havre."

THE JOURNAL OF COMMERCE, Friday, October 23, 1981

Le Havre Plans 2nd Lock To Meet Traffic Demand

By ALAN F. SCHOEDEL
Journal of Commerce Staff

> *'The second lock is needed because the present Francis I Lock may become saturated between 1985 and 1988 at the present rate of growth.'*

Anticipating a continued growth in vessel traffic, the Port of Le Havre is planning a second lock to serve as an entrance to the extensive new section of the port, Rene Genin, traffic and marketing director, told a luncheon for shippers in New York this week.

Still to be decided is the location of the lock. It may be built alongside the existing Francis I Lock, completed in 1969 as a link between the old harbor and the new, or it may be constructed at a completely different site, connecting the extensive canals of the new port with the parallel Seine River.

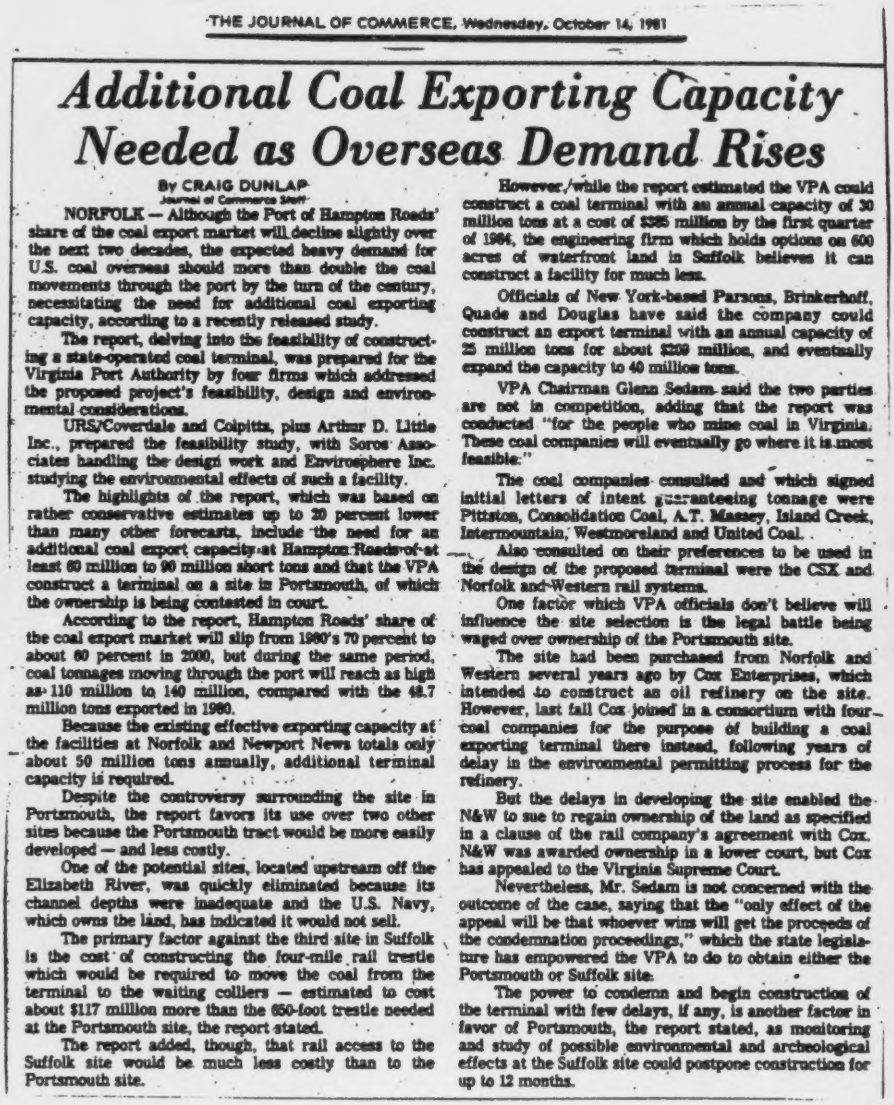
It is to be in operation in about five years, Mr. Genin said, and will not be as large as the Francis I Lock, which is more than 1,200 feet long, has a depth of more than 75 feet, and can handle ships of 220,000 deadweight tons. Locks are necessary because Le Havre has a tidal rise and fall which may be as much as 25 feet in a day.

"The second lock is needed because the present Francis I Lock may become saturated between 1985 and 1988 at the present rate of growth," Mr. Genin said.

Le Havre, which claims the steadiest rate of growth in Europe for container traffic, registered a 16 percent increase in container tonnage during the first six months of this year, and for all of 1980 reported a gain of 9.6 percent in the growth of containerized cargo volume. The port handled some 500,000 containers in 1980 and expects the figure to reach 600,000 for this year.

Last year Le Havre handled more containers than all other French ports combined, said Mr. Genin, and the United States is the "first partner" of Le Havre in terms of both cargo tonnage and cargo value. There are nine containership sailings a week from the Port of New York to Le Havre, he added, and the French port serves as a gateway for several countries of Europe.

Aside from the new lock, Mr. Genin said the port has several other projects. They include a new fruit center able to accommodate the largest reefer ships, a center for import and export of bagged goods, a floating dock for vessels of up to 170,000 tons deadweight, a terminal for various types of bulk cargoes, a free trade zone and a world trade center.



THE JOURNAL OF COMMERCE, Wednesday, October 14, 1981

Additional Coal Exporting Capacity Needed as Overseas Demand Rises

By CRAIG DUNLAP
Journal of Commerce Staff

NORFOLK — Although the Port of Hampton Roads' share of the coal export market will decline slightly over the next two decades, the expected heavy demand for U.S. coal overseas should more than double the coal movements through the port by the turn of the century, necessitating the need for additional coal exporting capacity, according to a recently released study.

The report, delving into the feasibility of constructing a state-operated coal terminal, was prepared for the Virginia Port Authority by four firms which addressed the proposed project's feasibility, design and environmental considerations.

URS/Coverdale and Colpitts, plus Arthur D. Little Inc., prepared the feasibility study, with Soros Associates handling the design work and Envirosphere Inc. studying the environmental effects of such a facility.

The highlights of the report, which was based on rather conservative estimates up to 20 percent lower than many other forecasts, include the need for an additional coal export capacity at Hampton Roads of at least 60 million to 90 million short tons and that the VPA construct a terminal on a site in Portsmouth, of which the ownership is being contested in court.

According to the report, Hampton Roads' share of the coal export market will slip from 1980's 70 percent to about 60 percent in 2000, but during the same period, coal tonnages moving through the port will reach as high as 110 million to 140 million, compared with the 48.7 million tons exported in 1980.

Because the existing effective exporting capacity at the facilities at Norfolk and Newport News totals only about 50 million tons annually, additional terminal capacity is required.

Despite the controversy surrounding the site in Portsmouth, the report favors its use over two other sites because the Portsmouth tract would be more easily developed — and less costly.

One of the potential sites, located upstream off the Elizabeth River, was quickly eliminated because its channel depths were inadequate and the U.S. Navy, which owns the land, has indicated it would not sell.

The primary factor against the third site in Suffolk is the cost of constructing the four-mile rail trestle which would be required to move the coal from the terminal to the waiting colliers — estimated to cost about $117 million more than the 650-foot trestle needed at the Portsmouth site, the report stated.

The report added, though, that rail access to the Suffolk site would be much less costly than to the Portsmouth site.

However, while the report estimated the VPA could construct a coal terminal with an annual capacity of 30 million tons at a cost of $385 million by the first quarter of 1984, the engineering firm which holds options on 600 acres of waterfront land in Suffolk believes it can construct a facility for much less.

Officials of New York-based Parsons, Brinkerhoff, Quade and Douglas have said the company could construct an export terminal with an annual capacity of 25 million tons for about $209 million, and eventually expand the capacity to 40 million tons.

VPA Chairman Glenn Sedam said the two parties are not in competition, adding that the report was conducted "for the people who mine coal in Virginia. These coal companies will eventually go where it is most feasible."

The coal companies consulted and which signed initial letters of intent guaranteeing tonnage were Pittston, Consolidation Coal, A.T. Massey, Island Creek, Intermountain, Westmoreland and United Coal.

Also consulted on their preferences to be used in the design of the proposed terminal were the CSX and Norfolk and Western rail systems.

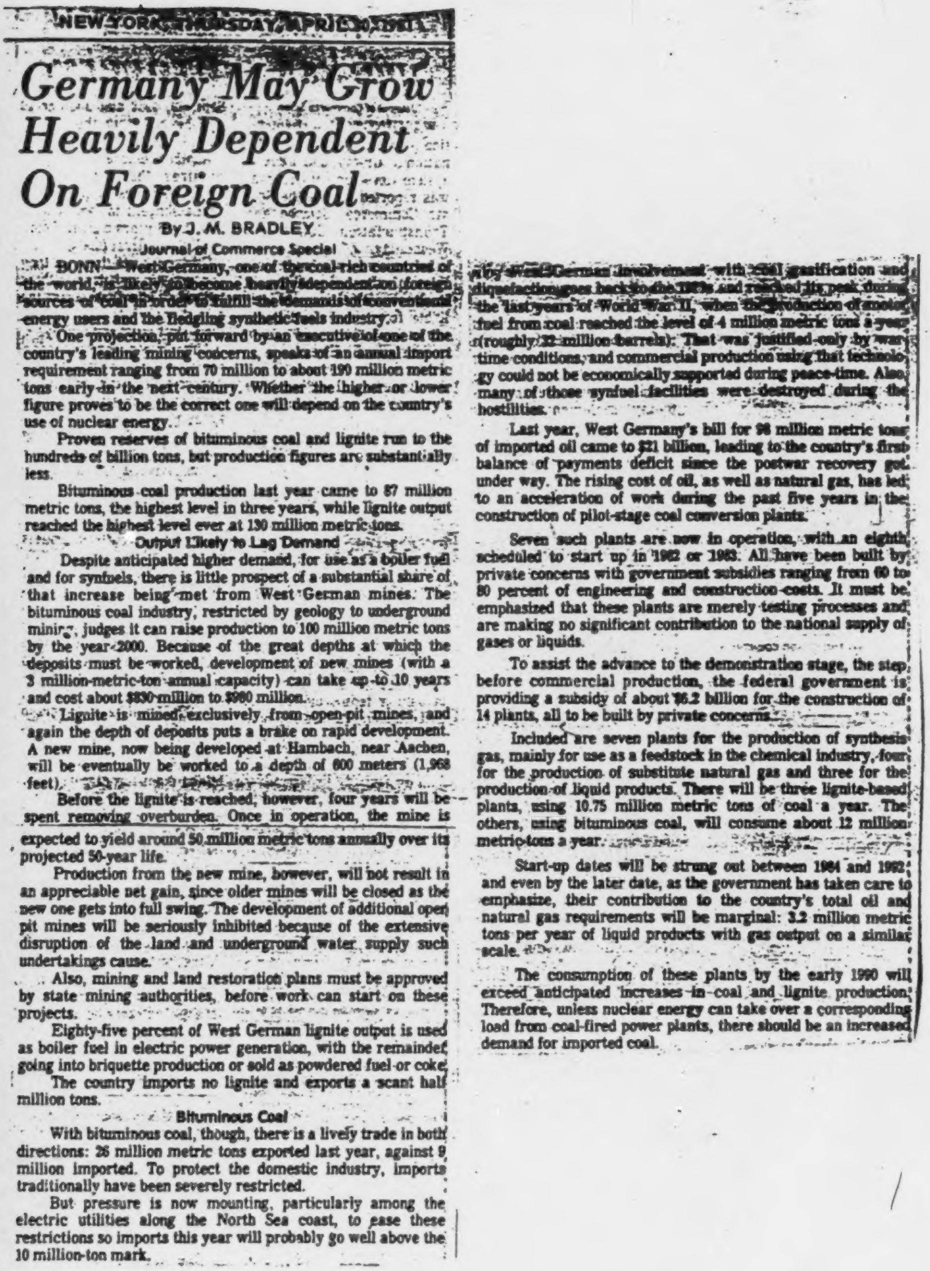
One factor which VPA officials don't believe will influence the site selection is the legal battle being waged over ownership of the Portsmouth site.

The site had been purchased from Norfolk and Western several years ago by Cox Enterprises, which intended to construct an oil refinery on the site. However, last fall Cox joined in a consortium with four coal companies for the purpose of building a coal exporting terminal there instead, following years of delay in the environmental permitting process for the refinery.

But the delays in developing the site enabled the N&W to sue to regain ownership of the land as specified in a clause of the rail company's agreement with Cox. N&W was awarded ownership in a lower court, but Cox has appealed to the Virginia Supreme Court.

Nevertheless, Mr. Sedam is not concerned with the outcome of the case, saying that the "only effect of the appeal will be that whoever wins will get the proceeds of the condemnation proceedings," which the state legislature has empowered the VPA to do to obtain either the Portsmouth or Suffolk site.

The power to condemn and begin construction of the terminal with few delays, if any, is another factor in favor of Portsmouth, the report stated, as monitoring and study of possible environmental and archeological effects at the Suffolk site could postpone construction for up to 12 months.



NEW YORK, THURSDAY, APRIL 30, 1981

Germany May Grow Heavily Dependent On Foreign Coal

By J. M. BRADLEY

Journal of Commerce Special

BONN — West Germany, one of the coal-rich countries of the world, is likely to become heavily dependent on foreign sources of coal in order to fulfill the demands of conventional energy users and the fledgling synthetic fuels industry.

One projection, put forward by an executive of one of the country's leading mining concerns, speaks of an annual import requirement ranging from 70 million to about 190 million metric tons early in the next century. Whether the higher or lower figure proves to be the correct one will depend on the country's use of nuclear energy.

Proven reserves of bituminous coal and lignite run to the hundreds of billion tons, but production figures are substantially less.

Bituminous coal production last year came to 87 million metric tons, the highest level in three years, while lignite output reached the highest level ever at 130 million metric tons.

Output Likely to Lag Demand

Despite anticipated higher demand, for use as a boiler fuel and for synfuels, there is little prospect of a substantial share of that increase being met from West German mines. The bituminous coal industry, restricted by geology to underground mining, judges it can raise production to 100 million metric tons by the year 2000. Because of the great depths at which the deposits must be worked, development of new mines (with a 3 million-metric-ton annual capacity) can take up to 10 years and cost about $830 million to $980 million.

Lignite is mined exclusively from open-pit mines, and again the depth of deposits puts a brake on rapid development. A new mine, now being developed at Hambach, near Aachen, will be eventually be worked to a depth of 600 meters (1,968 feet).

Before the lignite is reached, however, four years will be spent removing overburden. Once in operation, the mine is expected to yield around 50 million metric tons annually over its projected 50-year life.

Production from the new mine, however, will not result in an appreciable net gain, since older mines will be closed as the new one gets into full swing. The development of additional open pit mines will be seriously inhibited because of the extensive disruption of the land and underground water supply such undertakings cause.

Also, mining and land restoration plans must be approved by state mining authorities, before work can start on these projects.

Eighty-five percent of West German lignite output is used as boiler fuel in electric power generation, with the remainder going into briquette production or sold as powdered fuel or coke.

The country imports no lignite and exports a scant half million tons.

Bituminous Coal

With bituminous coal, though, there is a lively trade in both directions: 26 million metric tons exported last year, against 9 million imported. To protect the domestic industry, imports traditionally have been severely restricted.

But pressure is now mounting, particularly among the electric utilities along the North Sea coast, to ease these restrictions so imports this year will probably go well above the 10 million-ton mark.

West German involvement with coal gasification and liquefaction goes back to the 1920s and reached its peak during the last years of World War II, when the production of motor fuel from coal reached the level of 4 million metric tons a year (roughly 32 million barrels). That was justified only by wartime conditions, and commercial production using that technology could not be economically supported during peace-time. Also, many of those synfuel facilities were destroyed during the hostilities.

Last year, West Germany's bill for 98 million metric tons of imported oil came to $21 billion, leading to the country's first balance of payments deficit since the postwar recovery got under way. The rising cost of oil, as well as natural gas, has led to an acceleration of work during the past five years in the construction of pilot-stage coal conversion plants.

Seven such plants are now in operation, with an eighth scheduled to start up in 1982 or 1983. All have been built by private concerns with government subsidies ranging from 60 to 80 percent of engineering and construction costs. It must be emphasized that these plants are merely testing processes and are making no significant contribution to the national supply of gases or liquids.

To assist the advance to the demonstration stage, the step before commercial production, the federal government is providing a subsidy of about $6.2 billion for the construction of 14 plants, all to be built by private concerns.

Included are seven plants for the production of synthesis gas, mainly for use as a feedstock in the chemical industry, four for the production of substitute natural gas and three for the production of liquid products. There will be three lignite-based plants, using 10.75 million metric tons of coal a year. The others, using bituminous coal, will consume about 12 million metric tons a year.

Start-up dates will be strung out between 1984 and 1992, and even by the later date, as the government has taken care to emphasize, their contribution to the country's total oil and natural gas requirements will be marginal: 3.2 million metric tons per year of liquid products with gas output on a similar scale.

The consumption of these plants by the early 1990 will exceed anticipated increases in coal and lignite production. Therefore, unless nuclear energy can take over a corresponding load from coal-fired power plants, there should be an increased demand for imported coal.

The Journal of Commerce
AND COMMERCIAL
NEW YORK, MONDAY, APRIL 27, 1981

UK Likely to Buy Less Coal From US

By EDWIN UNSWORTH
Journal of Commerce Staff

LONDON — United States' coal exports to Britain are likely to drop considerably this year because the British Steel Corp., its biggest U.K. customer, has been persuaded to sign a major contract with Britain's National Coal Board.

A 450,000-metric-ton a year coking coal contract for British Steel's Port Talbot plant in South Wales has gone to the NCB. It's expected that another contract for between 200,000 and 300,000 tons due for renewal later this year also will be awarded to the coal board.

British Steel, which originally expected to import about 3 million tons of coking coal this year, has come under increased pressure to buy more British coal.

Earlier in the year the government averted a major miners strike by promising to reduce growing coal imports from the United States, Australia, and Poland. Foreign coal has generally been cheaper than British coal, sources say.

British Steel said, however, that it is willing to buy British coal only if its price, quantity and delivery match those of imported coal.

To bring the price of British coal to world levels, the government will probably have to provide a great deal of financial assistance to the industry, sources say.

Meanwhile, NCB chairman Sir Derek Ezra, claims in the board's "Coal and Energy Quarterly" published Friday that the greatest obstacle to doubling coal use in Britain by 1990, as proposed at last year's Venice Summit, is not the availability of coal but the uncertainty of commitment by users.

Utilities continue to hold back from building new coal-fired generating capacity because of uncertainties concerning the demand for electricity, competition from nuclear power, availability of natural gas, and compliance with regulatory procedures and environmental laws.

Sir Derek said an NCB review of the prospects of coal conversion in the various industrial sectors will probably be out in May.

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